
AMSTRAD COMPUTER USER
ACU
MARCH 1991
£1.45
SPIDEY'S BACK!
Brush away the cobwebs and test the awesome might of Mysterio in Empire's epic Amazing Spiderman
SPARK OUT
Radio ace Chris Price boldly goes into the world of electronics with his CPC.
IN THE BEGINNING...
Learn BASIC the easy way with ACU's great new feature for budding programmers.
THE LABYRINTH
Delight in the musings of the Dungeon Master as the all-new ACU adventure column arrives at last!
BATTLE STATIONS
More action than you can handle in this month's mad, bad Gameplan.
OFFICIAL
THE MAGAZINE FOR THE AMSTRAD 464, 6128 & GX4000 CONSOLE
03
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Gazza II

BrunWord

BrunWord 6128 £30

BrunWord 6128 is a complete word processing package with word processor, spelling checker and card filing programme. BrunWord 6128 out performs all other word processors for the CPC6128. It has its own high speed screen routine, giving it a very fast screen response and the editor features are logically arranged to be easy to learn. The spelling checker, with its dictionary, load into memory at the same time as the word processor, making access very convenient and exceptionally fast. It is supplied with an introductory tutor file.

BrunWord Features

*40, 80 or 128 column display. *Touch typing speed over 200 words/min. *True insert or overwrite. *Justify or unjustify paragraph or whole text. *Justified text has balanced appearance. *Instant word wrap. *Block save, move, copy, insert and delete. *Local editing with word delete/undelete. *Adjustable margins and TABs. *Column/Line/Page display with file name. *True word count. *Find and replace. *Help menus. *Memory filing system. *Single character embedded printer commands (18 with 3 codes and 21 with 10 codes). *Page throw markers. *Multiple copies. *Odd/even page headers/footers with page numbers. *Multi file printing (new page or continuous). *Print specified pages. *Works with any printer. *True display superscript and subscript numbers. *User defined print characters. *Load/Save ASCII files from/to other word processors. *Files can be encrypted. *Maximum file size about 9 pages of text.

BrunSpell Features

*Memory resident. *Checks 4,000 words/min. *30,000 word dictionary. *No American spellings. *Add up to 5,000 of your own words. *Instant lookup. *Helps to find correct spelling. *Automatic correction.

DataFile Features

*Alphabetical, numerical, date sorting. *User defined headings. *Search routine. *Data merging. *Label printing.

Free Booklet

Our 16 page free booklet explains all about our programmes. No need to write a letter, just send a large (A4 size) SAE to 'BrunWord & Printer', Brunning Software, at the address below.

Info-Script £50

Info-Script is a complete data processing package and includes all the features of BrunWord 6128 and BrunSpell. The word processor and database can be resident together giving the speed and convenience of access to both programmes with no disc delays.

Database Features

*Very fast (e.g. takes 1 second to search 2000 addresses for surname 'Smith', initial 'B'). *Specific field search and/or progressive general search. *Instant sort on any field, alphabetical, numerical, date or reverse order (takes no time as the data does not move). *3 sets of user defined headings for each file. *4 markers for instant selection, plus one temporary marker. *Markers can be cleared or inverted and any pair can be added (allows complex searches to be quickly and easily performed). *No setting up of field type or length. *Efficient storage. *Relational records, Parents, Sons and Daughters. *Simple field to field arithmetic with running total. *Direct data merging into BrunWord. *Easy direct label printing, 1 across, 2 across, left of 2 or right of 2. *Single or multi-step.

Data Merging Features

*Simple intelligent system, &N &A &D construct full name, full address and date. *&1 &2 etc specify individual fields. *Insert or fixed format merging. *Automatic justify after merging. *Single step (see before printing) or multi-step. *Stop any time, go to word processor, restart same place. *Merge data from several records for summary, invoice, purchase order etc. *Simple arithmetic. *Running total. *Running VAT total. *Conditional loading. *Conditional printing. *Repeat patterns.

Quotes

"It may seem that I have just written a very long advert for BrunWord 6128 but I haven't, I'm just so impressed." (Phil Craven, ACU Feb 90, page 25).

"One such is Peter Brunning's BrunWord 6128 which is without doubt in my mind, the most powerful and friendly word processor available for the 6128 today, with the possible exception of.... BrunWord Elite!" (David Dorn, ACU July 90, page 43).

BrunWord Elite £55

Most word processors, including BrunWord 6128, are able to drive both daisy wheel and dot matrix printers. This creates the need for a style of printer control that is acceptable to two very different types of printers. BrunWord Elite does not have this restriction as it is specifically written to be used only with dot matrix printers. This gives it a unique advantage over other word processors and as a result it is able to provide much more advanced printer control. This is taken even further, as BrunWord Elite is supplied with an 8 Bit Printer Status Port which allows the programme to continuously monitor the status of the printer, (and provides the missing 8th bit for the original CPC6128). This enables the programme to respond in a more sophisticated way than normally possible. It will wait for ON LINE or <ESC> if the printer is initially OFF or OUT OF PAPER but automatically returns to the editor if the printer is turned OFF.

24 Pin Fonts

Before we designed the fonts for BrunWord Elite, we studied several good magazines. Fineline and Finetype are our variations of the two styles commonly used. Fineline is supplied in 3 sizes and Finetype in 2 sizes. To these we added a display font in computer style and a straightforward 'Heavy' font. Altogether there are 7 fonts supplied, 4 are full 24 pin, 2 are middle size 21 pin and one is a small size 16 pin font.

BrunWord Elite Features

BrunWord Elite has all the features and speed of BrunWord 6128 and BrunSpell, plus:-

*Print in columns *Specify page layout *Use special high quality proportional fonts *Use advanced micro justification with proportional text *Set printer margins independently *Move print head up or down paper, specified in inches from top *Set micro line spacing within text *Print line or box by specifying size and line thickness *Use absolute TABs with proportional text *Download a file directly from disc during printing. *Can be supplied with Info-Script for data merging.

Headline

Headline is a print enhancement utility for use with low cost 9 pin printers. It enables virtually all the features of BrunWord Elite, including the 24 pin fonts, to be used with any 9 pin Epson compatible printer with quadruple graphics (that's all well known modern 9 pin printers). Features include micro justification of proportional text, single, double or eight times height and 1 to 9 times width.

Comparisons

We have tested BrunWord 6128, Protext and Tasword 6128 with the same file of 3366 words.

The first test was to compare the scrolling speed of the screen, using line by line scrolling. This is a vital performance test as the CPC6128 tends to be naturally slow at this task. BrunWord scrolled 40% faster than Protext which in turn scrolled 19% faster than Tasword.

Protext was the fastest to justify but used a simple process that added spaces at the centre of each line, giving the middle of the text a bulging appearance. It did not display as it went along and so needed a separate operation to see the result. BrunWord displayed as it justified and produced the best appearance of all three. BrunWord was 30 times faster than Tasword.

Our simulated typing test achieved 218 words per minute. Both BrunWord and Protext had no trouble at this speed but Tasword was very slow inserting text into the start of a paragraph and could only handle 16 words per minute.

The spelling test checked all 3366 words. BrunSpell took 52 seconds and needed no disc changes. Prospell took 6 min 24 sec and needed 8 disc changes. Taspell took 18 min 46 sec and needed 3 disc changes.

How They Compare

	BrunWord 6128 & BrunSpell	Protext Disc & Prospell	Tasword 6128 & Taspell
Typing into 241 word paragraph Typing into start of text	218 w/m 218 w/m	218 w/m 218 w/m	16 w/m 150 w/m
Scroll to end, line by line	1 min 27 sec	2 min 2 sec	2 min 25 sec
Justify paragraph of 241 words	1 sec	0·2 sec	34 sec
Change appearance to format and Appearance to Format	17 sec	17 sec	53 sec
Spelling check 3366 words Average speed Disc changes	52 sec 3883 w/m None	6 min 24 sec 526 w/m 8	18 min 46 sec 179 w/m 3
Spelling help 'NECESERY' Spelling check word at cursor	1 sec 0·5 sec	12 sec Not possible	Not possible Not possible
Screen format - columns Page boundaries	40, 80, 128 Shown	40 or 80 Not shown	80 only Shown

9 Pin Elite

The Elite system for 9 pin printers consists of BrunWord Elite, BrunSpell, Headline, 8 bit printer status port and 7 'type setting' fonts (fonts are 24 pin in size but only for 9 pin printers). Total price £55.00 inclusive.

9 Pin Elite+Info

The Elite system as above but including Info-Script and a backup disc. Total price £92.00 inclusive.

24 Pin Elite+Info

BrunWord Elite, BrunSpell, Info-Script, back up disc, 8 bit status port and 7 'type setting' fonts for downloading to a 24 pin printer. Total price £90.00 inc.

Send cheque/PO/Access number/Visa number to:

Brunning Software
138 The Street,
Little Clacton, Essex, CO16 9LS
Telephone (0255) 862308



BrunWord 6128 with BrunSpell & DataFile. . . £30.00
Info-Script with BrunWord 6128 & BrunSpell. . £50.00
9 Pin BrunWord Elite £55.00
9 Pin BrunWord Elite with Info-Script. £92.00
24 Pin BrunWord Elite with Info-Script. £90.00
100 Letters (needs Info-Script). £15.00

Supplied on 3in Disc for CPC6128 or CPC6128 Plus.
You must state which computer.

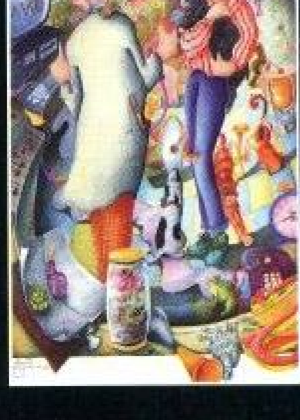
All prices are inclusive for UK. Overseas orders sent insured air mail - Europe add £2.50 : Rest add £7.50

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REGULARS

FEATURES



INTO THE LABYRINTH

Hands up who bought a new GX400 console for Christmas and couldn't find the cartridge? I'd say there were probably quite a few by the number of calls we've had so far.

Ok, most of you will probably have solved this little mystery by now but, for those that haven't and for those who have yet to get their hands on these excellent games machines, here's a vital tip.

When you open up the polystyrene sleeve surrounding the console, don't bother looking for the cartridge inside, 'cos it's not there. What you should do, is remove the console and the paddles etc., and then turn the bottom layer of polystyrene upside down. Lo and behold there, poking its nose out before your very eyes, is the Burnin' Rubber cartridge.

Who knows, the packaging may have changed by the time this helpful hint reaches you and the cartridge may be easier to find but, if not, just follow the simple instructions above for success.

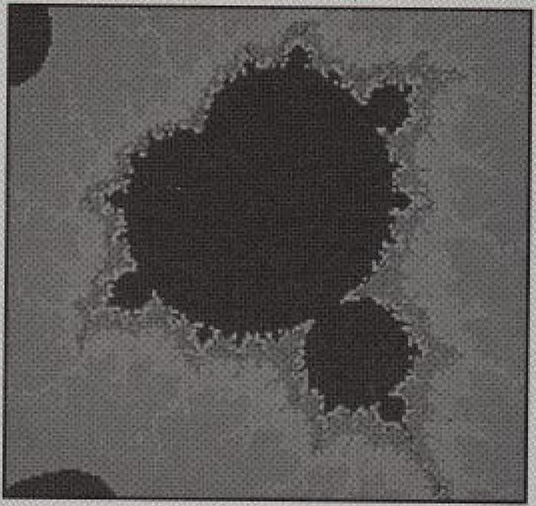
BUYING IN STYLE

The good news from Bradford based Microstyle is that they've got a lot of goodies in store at prices you'll find hard to beat. Let's put it another way: if you're looking for a DDI-1 disc drive at a silly price, Microstyle have got 100 of them at just £69.95+£3 package. They're going fast, so you'll have to get in quick to snap them up, but you won't get much better value than that.

Alternatively, if you've already got a 3.5" drive and you've discovered that 3.5" discs are cheaper than 3" discs, don't fuss over your Rodos or Ramdos, just pick up one of Microstyle's easy to use Switch Kits for just £3 to give you a total B drive for your machine.

Does up to 800K of saving space sound tempting to you? Then get in contact with Microstyle now at 212 Dudley Hill Road, Bradford BD2 3DF, or phone them on 0274 636652.

CHAOS RULES



Fancy getting hold of some fractals? You do? Well you'd better write off to Frachaos straight away and get hold of their new catalogue.

Fractals, according to Frachaos, is the new branch of geometry that expresses the beauty, intricacy and simplicity of the natural world and Frachaos is the first company in the UK to specialise in it.

The new catalogue contains videos, books, shareware, fine art prints and, of course, commercial software for anything from mathematics to fashion purposes.

So, if you're after a bit of chaos, write for your free catalogue from Frachaos, Higher Trengrove, Constantine, Falmouth, Cornwall TR11 5QR, or call them on 0326 40973.



GAMES GALORE

Roll up, roll up and get ready to find out who the lucky winners of the 10 fantastic Subbuteo board and computer games are. Are you sitting comfortably? Then we'll begin. They are: Miss E.Shone of Upton, Wirrel; Stuart Mok of Croydon, Surrey; Paul Atkinson of Droitwich, Worcs.; Christopher Lang of Renfrew, Scotland; Martin Buckle of Stowmarket, Suffolk; Brian Dewsnap of Seabridge, Newcastle; Steven Smarratt of Dore, Sheffield; G. Abbott of Southport, Lancs.; R.W.Scott of Escrick, York and Craig Brown of Little Stoke, Bristol.

Are you one of the lucky ones? If so, a board and computer game will be winging its way to you very soon. If not, don't despair. Turn to page 12 and find out how you could win another fabulous ACU prize right now!

MAD HATTER

Those jolly boys and girls at Code Masters have done it again. That's right, they're outselling everything else under the sun by the looks of it, especially with their latest blasts in the Quattro series and the Christmas favourite Guardian Angel.

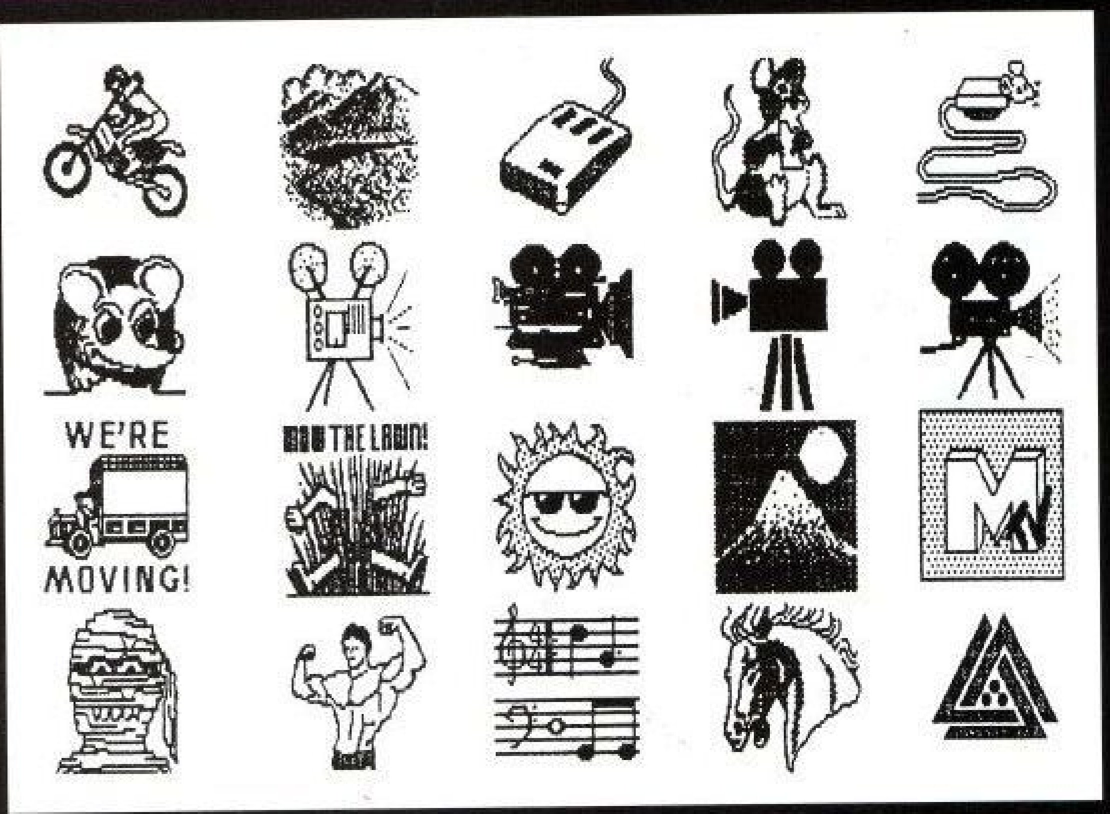
In fact, the little Darlings are so proud of their success that it looks like it could have gone to their heads. Well, David is certainly looking as mad as a hatter anyway.



ART FOR ART'S SAKE

Those awfully nice people at the PCW World have put together a great package for CPC users that'll be hard to beat for the price for users of Stop Press

For just £4.95, you can get hold of a disc jam-packed with over 120 files of superb clip art to suit any requirement. Whether you edit a club newsletter or fanzine, or you just fancy something to brighten up your notepaper, there's more than enough to choose from in the PCW World Catalogue. To get hold of yours, contact PCW World at Cotswold House, Cradley Heath, Warley, West Midlands B64 7NJ. Tel: 0384 66269.



STAR BARGAINS

Star Computer Printers have been at the workbench again to bring out three more offerings in their business printing range.

The LC-200 9-pin model comes in both mono and colour with a 16Kb buffer as standard, electronic dip switches, caterpillar tractors, eight Near Letter Quality fonts and a high speed draft facility of 225 cps. All that for just £259 sounds pretty fair indeed.

The 24-pin model, the LC24-200 offers 10 NLQ fonts, with 11 extra fonts available on cards. It's 7Kb buffer is uprated to 30 Kb for the colour version and both are expandable with the addition of a new 32 Kb Ram card.

NEW LC24-200

At £319 for the mono and £369 for the colour version, both should be well received at home and in the office.

SUBS AWAY

Here we go with some more lucky winners in our monthly subscriptions draw. Those walking off with super cash prizes in the MSM October renewal draw are as follows:

J.A.Pedder from Luton, who wins £150.

A.J.Smith from Northampton, who wins £50.

R.D.Knight from Essex (Ooh! Is that my uncle?-Ed.), who wins £50.

Don't forget, everyone who renews their subscription gets entered into the draw, so call us anytime on 091 510 2290 to be in with a chance. Good luck!



DATEL ELECTRONICS



dk'tronics

64K AND 256K MEMORY EXPANSION

- Simple plug in memory expansion gives instant extra memory.
- Features bank switching software for easy use by the programmer or for use as a data storage area.
- The software also features some extra BASIC commands.
- 64K unit expands 464 to 128K. The 256K unit takes your 6128 to 320K!!
- 64K unit brings 464 up to CPC 6128 memory configuration making a much larger software base available. Will work straight off with many programs designed for this unit (including OCP Art Studio - see Ad.).
- Ideal for use with the CPM 2.2 etc.
- Bank switching done automatically by software (cassette 464 - disk 6128).

ONLY £49.99 64K FOR 464

ONLY £99.99

256K FOR 464 OR 6128 (PLEASE STATE)

THE RAM MUSIC MACHINE IS PROBABLY THE MOST EXCITING MUSIC ADD-ON AVAILABLE FOR ANY COMPUTER

RAM music machine



- It's a full sound sampling system allowing any sound to be recorded digitally into the computer RAM. Once stored, the sound can be replayed at different pitches with many varying effects.
- It's an echo chamber & digital delay line. Create some very interesting effects.
- It's a two voice music/sound synth.
- The Music Machine can also be used as a drum machine - eight drum sounds are already provided for you, but you can easily produce more of your own.
- The extremely powerful software allows you to compose tunes from individual bars of music. You can edit your creations on screen & Save/Load sounds, instruments & rhythms.
- Fully MIDI compatible. The Ram Music Machine supports full MIDI In, MIDI Out & MIDI Thru.
- Output through your Hi-Fi or Headphones. Comes complete with microphone.
- Use a full size MIDI keyboard to play the Music Machine.
- Sounds produced by the Music Machine can be mixed with a MIDI synthesiser's own sounds.
- On screen Sound Editor can produce MIDI data from your own compositions.
- Various sampled sounds are provided in order to get you going.
- No other product can offer so much in one unit - it's the TOTAL SOLUTION!!

ONLY £49.99

FOR THE BEST MUSIC ADD-ON AVAILABLE FOR THE AMSTRAD

AMDRUM



- **Now you can turn your Amstrad into a real Digital Drum Machine.**
- AmDrum from Cheetah Marketing is a superb plug in device that produces "real" drum sounds via its unique digital system.
- On screen menu driven drum kit makes composing drum sounds easy for anyone to do!
- Just plug the output into your Hi-Fi, cassette player, etc. and that's it - your Amstrad is a drum kit!!
- Comes complete with DrumKit Sound plus extra DrumKit and Kit Editor Program (worth £9.99) absolutely FREE!!

ONLY £14.99

SPEECH SYNTHESISER & STEREO SOUND BOOSTER

- This easy to use Speech Synthesiser includes a powerful Stereo Amplifier and two pod speakers which are an enormous improvement on the sound supplied by the internal mono speaker.
- Speech output is monorial but directed to both speakers. Booster gives stereo to computer internal sound output.
- Using the SPO/256 Speech Chip the unit has almost infinite vocabulary.
- Text to speech software is provided in ROM to make speech output simplicity itself.
- Voicing is transparent to the user and the computer can carry on with other program tasks as necessary.



ONLY £29.99

464 OR 6128 (Please state which)

dk'tronics

LIGHTPEN/GRAPHICS SYSTEM

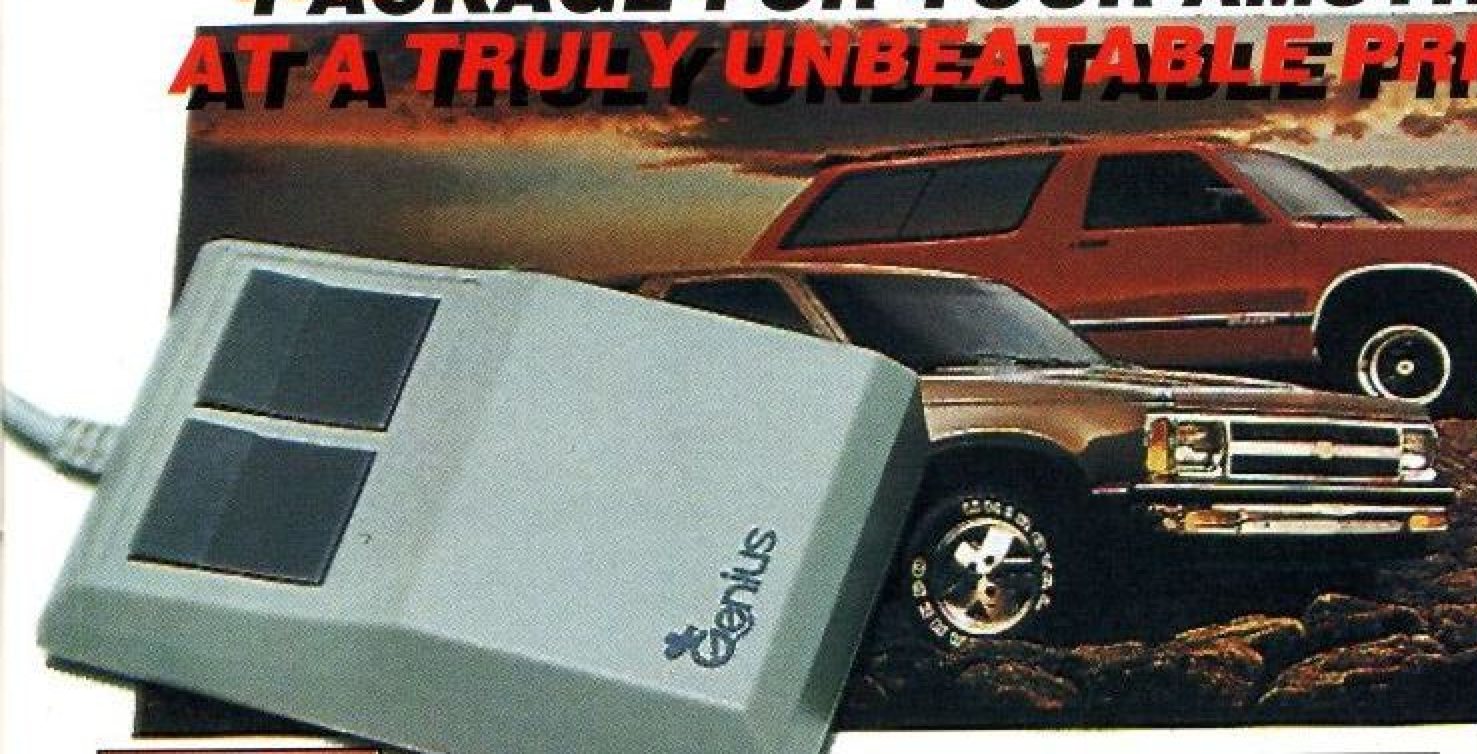


- Complete Lightpen and graphics system lets you create a whole range of effects on screen.
- It can magnify, shrink, colour fill and create circles, rectangles, lines and curves.
- Pictures can be edited at pixel level using a scratch pad which is magnified to a full screen.
- Picture storage and retrieval, and a pen calibration feature.
- Printer dump utilities for Epson/Amstrad printers supplied (on cassette).
- Complete package - no more to buy.

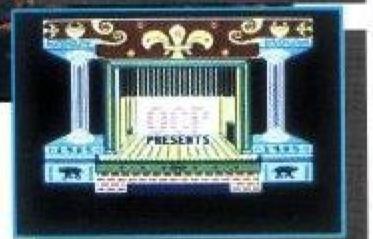
ONLY £14.99 CASSETTE

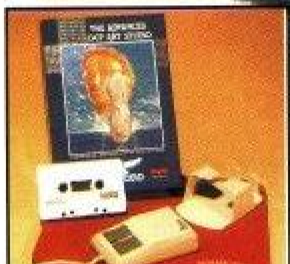
OR £24.99 WITH SOFTWARE ON ROM - NOTHING TO LOAD 464 OR 6128 (Please state which)

NOW A TOTAL MOUSE/GRAPHICS PACKAGE FOR YOUR AMSTRAD AT A TRULY UNBEATABLE PRICE!!









TAPE OR DISK FOR 464 OR 6128 (PLEASE STATE WHICH REQUIRED) N.B. 464 NEEDS DK'TRONICS 64K RAM PACK

Genius Mouse COMPLETE WITH OCP ADVANCED ART STUDIO

- **Genius Mouse is a high resolution two button mouse featuring optical counting, teflon guides, microswitches, rubber coated ball and high quality interface.**
- **When combined with OCP Advanced Art Studio this graphics package is quite simply the best system available. The features are unmatched...**
- Create an image - shrink it, expand it, move it, rotate it, copy it, colour it, etc., etc.
- Spray patterns or shades, make elastic lines - stretch and manipulate shapes.
- Zoom in to add detail in fine mode. • Full cut and paste facilities plus excellent printer support.
- Pulldown/Icon driven menus for ease of use. • Mouse operation, plus joystick and keyboard control.
- 16 pens, 8 sprays, 16 brushes - so flexible anyone can create superb graphics easily.



COMPLETE WITH MOUSE INTERFACE

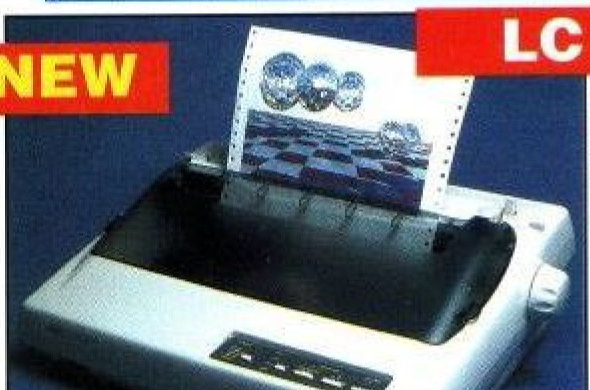


- The Genius Mouse Graphics System comes complete with the special Mouse Interface to allow super smooth control.
- Attractively styled to match your 464 or 6128 design and colour.
- Simply plugs into Expansion/Joystick port.

ONLY £49.99
TOTAL PACKAGE INCLUDES GENIUS MOUSE, INTERFACE, OCP ADVANCED ART STUDIO PLUS FREE MOUSE MAT AND HOLDER

FREE!
MOUSE MAT AND MOUSE HOLDER
(WORTH £12.99) WITH EACH PACKAGE

NEW — LC 200 COLOUR PRINTER PACKAGE



NOW YOU CAN PRINT OUT YOUR PICTURES IN FULL COLOUR!

- The Star LC200 Colour Printer not only prints in Near Letter Quality for your regular jobs but also prints out your pictures from Art Studio, etc., in genuine colour!
- LC200 is a full Centronics printer so it works with other computers (Amiga, ST, etc.).
- Made possible by Datel's unique colour printer driver - now you can have a hardcopy in up to 16 colours!! • No more to buy - just plug in and print!!

PACKAGE INCLUDES... STAR LC200 COLOUR PRINTER RRP £299.00
CENTRONICS PRINTER LEAD RRP £9.99
DATEL COLOUR PRINTER DRIVER SOFTWARE RRP £19.99
NORMALLY £327.98
COMPLETE PACKAGE NOW ONLY £239.00

COLOUR PRINTER DRIVER AVAILABLE SEPARATELY ONLY £19.99

- If you already have an LC10 or LC 200 Colour Printer we can supply the Driver separately.

HOW TO GET YOUR ORDER FAST...

Access

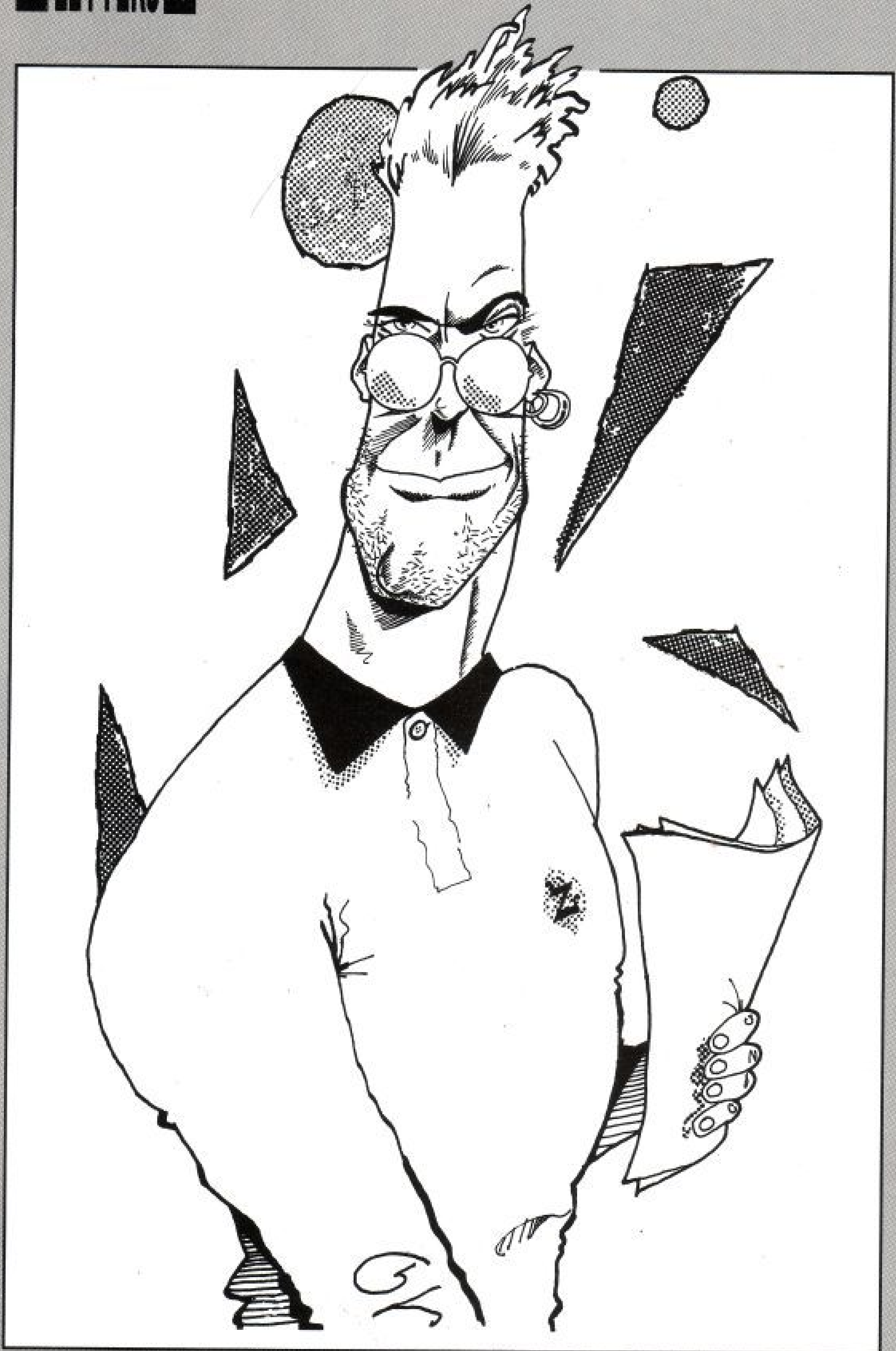
TELEPHONE (24 Hrs) - 0782 744707 - CREDIT CARD ORDERS

VISA

WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS. ORDERS NORMALLY DESPATCHED WITHIN 48 Hrs. ALL PRICES INCLUDE V.A.T. UK ORDERS POST FREE/EUROPE ADD £1/OVERSEAS ADD £3. PRICES AND SPECIFICATIONS CORRECT AT TIME OF PRESS AND SUBJECT TO CHANGE WITHOUT NOTICE. CALLERS WELCOME - Please reserve goods by telephone prior to visit. ALL CHEQUES/POSTAL ORDERS MADE PAYABLE TO...

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ZIGGY'S MAILBOX

X-Rated Plea

Please, please, please can you help me. I have an Amstrad 464 and plenty of games, but there is one that just makes me bang my head on the wall. It is X-Out by Rainbow Arts and I just can't seem to get past the first stage. Is there anything you can do to help, or am I doomed to suffer.

J. Cook, Eltham Hill, Eltham.

Ziggy: Well, after consultation with Hairy, here's a little something that might brighten up your day. If you pick the most expensive ship out from the shop, without putting it in the grid, and offer it to Melob in the bottom right hand corner, you immediately get the value of that ship. Keep repeating that and you could end up with eight fully armed fighting ships before you even start a level!

Any Port of Call...

I have this wonderful book which I am going to use for my second G.C.S.E. project, but I need to know the firmware calls for the printer and disc drive port. I am hoping that you can help me by sending the address of these ports for the 464.

If you can't help me, please ask if any of your readers can help me with this problem.

Maurice Mannig, Wandsworth, London.

Ziggy: To be honest and, without a firmware manual in front of me, those addresses elude me. But, although I can't help you straight off, I know a man who can. If you ring CPC Distributions on 0772 555034, they should have the answers at their fingertips.

Program Puzzle

I have been programming a bit utilising the extra 64K of memory in my 6128, using OUT & 7FOO,&Co (&C4, &C5, &C6 and &C7), but I have never been able to find out what the rest of the possible values (&C1, &C2 and &C3) do to the banks. I can't find any documentation about what they mean, so now I turn to you and the other

readers of ACU. Please could you tell me how to use them.

Would you print my address so that other readers can get in touch with me if they know anything, or if they want to get a contact in Denmark in order to swap tips on programming and other things

Martin Purdy, St. Grandloese 5, DK 4300 Holbaek, Denmark..

Ziggy: Again, without the manual, it's very much a matter of playing around and seeing what you get. Certainly, the values are used to switch over from one chip to another, between memory banks but, again, a call to CPC Distributors on 0772 555034 might prove helpful. Anybody want a Danish penpal?

Pick Up

I am a very keen Rugby and American Football player and I love computers. I have an Amstrad 464 and would like any details you have on such games that are available.

Matthew Gibson, Ripley, Surrey.

Ziggy: Well Matthew, you could be very pleased to hear that ACU is actually producing an American Football game to coincide with the Super Bowl right now! If you send in a cheque for just £6 to our Touchdown Tape offer at ACU, we'll make sure a copy gets out to you straight away.

Alternatively, there aren't any such games I can think of at the moment, except for Domark's recent Cyberball take-off. Why not try ringing the User Club on 091 5108787 to see what's been around?

Startin Up

I am writing to enquire about my CPC 464. I also have a Protext word processor and a Citizen LSP-100 printer. I am very keen to do more business applications on my computer, but can rarely get anything for it such as Desktop Publishers, Spreadsheets, Database and communications packages. Could you please try and get some information for me on where to purchase such packages if they are available on cassette.

I am also inquiring about disk drives that I could attach to my computer. Could you please give me details of drives, prices, ranges etc., and whether I can get one for my 464.

Lastly, I have always wondered what a CPC 664 is. I know that a 6128 is similar to the 464 but with twice the memory and a disk drive.

Graeme Riddell, Lanarkshire, Scotland.

Ziggy: Last question first. The 664 is basically the same as the 464 but with a disk drive instead of a tape datacorder. OK? As to the rest, there has been, and still is, a host of business material for the CPC which should be readily available at your local computer software shop. Packages like Stop Press and Fleet Street Publishing should help out on the DTP front and I know Peter Brunning does an excellent line in databases and spreadsheets. If you were to get hold of a disc drive, you may find some of these packages easier to locate. Speaking of which, try ringing Microstyle on 0274 636652 to enquire about the disk drives. You should pick up something fairly cheaply there and be ready to go in no time at all. Good luck.

Star Gazing

I should be grateful to know if any of your readers can help me. I am looking for a copy of a program entitled "Star Watcher" which I can purchase. It is an astronomical program which plots the positions of the stars for any day.

It was made by Triptych Publishing in 1985 and marketed by Amsoft with the reference number-Soft 915/1915.

David Webber, Cummal Fayle, 28 Ballaterson Fields, Ballaugh, Isle of Man.

Ziggy: Can't say that rings a bell I'm afraid, but I'm sure one of our readers will be able to put you on the straight and narrow David.

Booked Out

My two children who are 9 and 12 have an Amstrad 6128. They are both much more computer literate than I and yet all of us find the manual very hard going.

Both enjoy your 10-liners and would like to write and understand simple programs. What books are available specifically aimed for 6128 users?

None of the books you mention in your column are ever in our local shops. Surely, there are some mail order book firms that occasionally advertise in your magazine?

John Dearlove, Yeovil, Somerset.

Ziggy: The problem with many computer books is that they are extremely popular for a while and then, for no apparent reason, they are taken out of print. The best places to find some of these books is in second hand bookshops or, particularly, at computer fairs. If not, try ringing the User Club on 091510 8787 and ask to see their backlists.

CPC No Evil

I wonder if you can help me? I am considering buying a computer for my son and, after looking at various models, I am swayed towards the Amstrad CPC 464, complete with colour monitor. Favouring this model because of its compactness, with the built in datacorder and because of the monitor that is designed for the computer, I also bought the current issue of ACU and was impressed by the amount of software available.

Contrary to what I have been informed by various people who own other computers, is this the case?

Anyway, getting back to what I really wanted to know, is that, having inquired to a major retail outlet, they told me they no longer stock Amstrad personal computers for the reason that Amstrad no longer, or will not be in the near future, be producing personal computers and consolidating their interest in the business market.

Could you please confirm this and, if I do buy a CPC 464 and the company stop production, how will it affect the model for spare parts, peripherals and software?

J. Nightingale, Worksop, Notts.

Ziggy: Well, with the new Plus range out in the shops now, there won't be many of the old stock left lying around. However, despite the fact that some software companies are pulling out of the 8-bit market, the new launches have guaranteed supportive interest for the machines for some time to come.

Rest assured Mr Nightingale, the purchase of a new CPC Plus is well worth considering.

COMPETITION



Gather round and pay attention, otherwise you're not going to be able to win one of 10 fantastic Spiderman goody bags on offer, courtesy of those generous chappies at Entertainment International.

Yes indeed, fabulous bags containing the computer game, posters, comics and lots, lots more and, all you need to do to win one is answer the three simple questions below. Put your thinking caps on and don't forget to state which format you want the game on, on your entry.

1. What is Spidey's real name?
2. Which city does he protect from the bad guys?
3. How did Spidey gain his superpowers?

The editor's decision is final.
Send your entries to:

Super Spidey Compo
ACU,
MSM Ltd.,
116-120 Goswell Road,
London EC1V 7QD.

TABLES

By Peter Wilkins

The first of three excellent little programs from Peter here. Just run it and follow the simple instructions to see if your multiplication is up to scratch or not. Listen out for the little tunes to see if you got it right and no cheating!

```
10 'TIMES TABLES TESTER By Peter Wilkins 1990 [F1]
20 MODE 1:CALL &BC02 [EA]
30 x=INT(RND*12):y=INT(RND*12) [15]
40 PRINT"WHAT IS";X;" TIMES";Y [14]
50 CLEAR INPUT:INPUT A [68]
60 IF A=X*Y THEN GOSUB 100 [D9]
70 IF A<>X*Y THEN GOSUB 90 [93]
80 CLS:GOTO 30 [EB]
90 PRINT "WRONG! THE ANSWER WAS ";X*Y:FOR N=1000 T
O 3000 STEP 100:SOUND 1,n,5,15:NEXT N:FOR n=1 TO 1
000:NEXT n:RETURN [25]
100 PRINT "CORRECT!":FOR N=1000 TO 1 STEP -100:SOU
ND 2,n,15,15:NEXT N:RETURN [E6]
```

GREENSLEEVES

A marvellous little sound demo here that'll have you drifting away like a baby to the dulcet tones of King Henry's classic lullaby melody. Run it and see just how haunting it is.

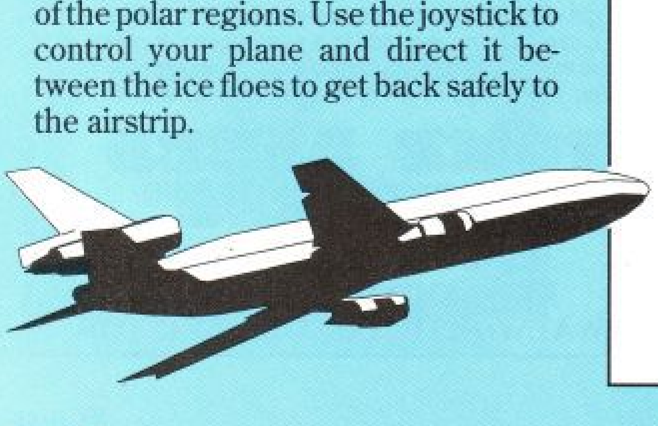


```
1 MODE 2:RESTORE 6 ' -= GREENSLEEVES =- By Peter W
ilkins 1990 [AF]
2 FOR N=1 TO 72 [FD]
3 READ CH,NOTE,LENGTH [0C]
4 ENV 1,15,-1,15 [1F]
5 SOUND CH,NOTE,LENGTH/2,10,1:NEXT N   [02]
6 DATA 1,142,100,1,119,200,1,106,100,1,95,150,1,89
,50,1,95,100,1,106,200,1,127,100,1,159,150,1,142,5
0,1,127,100,1,119,200,1,142,100,1,142,150,1,159,50
,1,142,100,1,127,200,1,159,100,1,190,200,1,142,100 [E5]
7 DATA 1,119,200,1,106,100,1,95,150,1,89,50,1,95,1
00,1,106,200,1,127,100,1,159,150,1,142,50,1,127,10
0,1,119,150,1,127,50,1,142,100,1,150,150,1,169,50,
1,150,100,1,142,300,1,142,300 [FC]
8 DATA 1,80,300,1,80,150,1,84,50,1,95,100,1,106,20
0,1,127,100,1,159,150,1,142,50,1,127,100,1,119,200
,1,142,100 [82]
9 DATA 1,142,150,1,150,50,1,142,100,1,127,200,1,15
0,100,1,190,300,1,80,300,1,80,150,1,84,50,1,95,100
,1,106,200,1,127,100,1,159,150,1,142,50   [42]
10 DATA 1,127,100,1,119,150,1,127,50,1,142,100,1,1
50,150,1,169,50,1,150,100,1,142,300,1,142,300 [7A]
```

PLANE

By Peter Wilkins

Here's a little game for a change that'll pit your wits against the frozen wastes of the polar regions. Use the joystick to control your plane and direct it between the ice floes to get back safely to the airstrip.



```
1 ' POLAR PLANE - By Peter Wilkins 1990 - [71]
2 ' TO CHANGE THE CONTROL TO KEYS EDIT THE VALUES  [F2]
OF 'L' AND 'R' IN LINE 4 [F2]
3 DEFINT A-Z [7A]
4 L=74:R=75 ' (74 AND 75=JOYSTICK - 8 AND 1=CURSOR [2F]
 KEYS - 71 AND 63=Z AND X) [2F]
10 RESTORE 10:INK 0,0:MODE 1:FOR N=&8000 TO &8005: [85]
READ M:POKE N,M:NEXT:X=300:OX=X:A=260:TG=1000:D=4: [85]
TAG:SYMBOL 250,90,126,90,24,90,126,90,24:DATA 62,2 [85]
15,205,77,188,201:INK 1,13:INK 2,26:INK 3,26 [85]
20 WHILE TEST(OX+8,364)=0:PLOT OX,380,1:PRINT" ";: [C2]
CALL &8000:PLOT X,380:PRINT CHR$(226);:OX=X:IF TG= [C2]
25 THEN MOVE 0,20:PRINT"************************** [C2]
**************" [C2]
30 IF NOT INKEY(L) THEN X=X-7 ELSE IF NOT INKEY(R) [85]
 THEN X=X+7 [85]
40 SOUND 1,INT(RND*50)+3000,11,11,,,8:C=RND*10:IF  [49]
C<2 THEN B=10-RND*20 [49]
50 IF D<>B*0.8 THEN D=D+SGN(ABS(B)-D):IF D<2 THEN  [EB]
D=2 [EB]
60 IF B+A<80 OR B+A>500 THEN B=-B [17]
70 MOVE A-(ABS(D)-3)*8,16:PRINT STRING$(D," ");:A= [31]
A+B [31]
80 TG=TG-1:IF TG=0 THEN MOVE 60,50:GRAPHICS PEN 3: [13]
PRINT"WELL DONE ! ! !  -=-  YOU LANDED !";:FOR N=1 [13]
 TO 500:INK 3,INT(RND*26):NEXT:WHILE INKEY$<>"":WE [13]
ND:CALL &BB18:GOTO 10 [13]
90 WEND:MOVE 30,50:PRINT"You CRASHED";TG;"Km from  [B3]
the airstrip"; [B3]
100 FOR O=1 TO 50:SOUND 1,INT(RND*50)+4000,1,15,,, [A8]
5:SOUND 1,INT(RND*50)+2000,1,15,,,13:NEXT:WHILE IN [A8]
KEY$<>"":WEND:CALL &BB18:GOTO 10 [A8]
```



WORDSMITH

By Geoffrey Short

If you like clever word puzzles, get a load of this. Simply type in a phrase, then see how many different words you can make out of the phrase to score top marks. The computer will store the phrase and update as you score, so take note of the menu options below and get scoring:

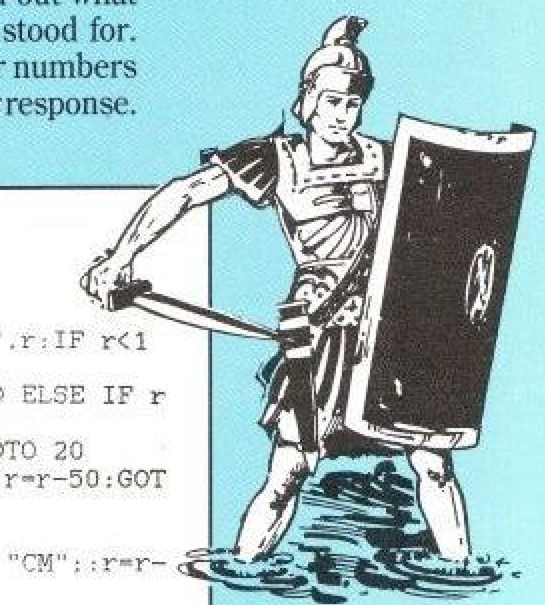
CTRL N – Enter New Phrase
S – Shuffle letters in phrase
W – Add word to list
E – Erase word from list
Cursor up/down – Move pointer
C – Clear memo screen
CTRL Q – Quite

```
1 BORDER 0:PAPER 0:PEN 3:INK 0,0:INK 1,24:INK 2,13:INK 3,26:MODE 1:LOCATE 7,2:PR
INT"WORDSMITH  by  G. Short 1990":LOCATE 4,9:PEN 1:PRINT"Words :"TAB(23)"Score :
":LOCATE 23,11:PRINT"Memo :":y$=CHR$(14)+"EWSC"+CHR$(17)+CHR$(241)+CHR$(240):y=1
:DIM k$(12) [F9]
2 z$="^<Q>uit      ^<N>ew      <C>lear memo  <E>rase      <W>ord      <S>huffle":
DRAW 638,0,1:DRAWR 0,398:DRAW 0,398:DRAW 0,3:DRAW 636,3:DRAWR 0,394:DRAW 3,396:D
RAW 3,0:PLOT 0,352:DRAWR 640,0:PLOTR 0,2:DRAW 0,354:PLOT 0,62:DRAWR 640,0:PLOTR
0,2:DRAW 0,64 [53]
3 PLOT 16,336,2:DRAWR 606,0:PLOT 480,272:DRAWR 110,0:WINDOW 4,18,10,20:WINDOW#1,
2,39,5,5:WINDOW#2,31,37,9,9:WINDOW#3,23,37,12,20:WINDOW#4,2,39,23,24:FOR f=0 TO
3:PAPER#f,2:PEN#f,3:CLS#f:NEXT:PAPER#4,0:CLS#4:PRINT#3:t$="ABCDEFGHIJKLMNOPQRSTU
VWXYZ":s=0:c=0 [] [E6]
4 WINDOW#5,8,33,7,7:o=1:GOSUB 6:MID$(y$,2,3)="EWS":PRINT#2,USING"###";s;:PRINT#2
,USING"/##";r:PEN#1,3:p=LEN(w$):PRINT#1,SPC(19-p/2)w$:PRINT#4,z$:IF s=0 THEN LOC
ATE#4,1,2:PRINT#4,SPC(9);:MID$(y$,2,1)="x":IF p=0 THEN PRINT#4,SPC(26):MID$(y$,3
,2)="xx" [1C]
5 PEN 3:LOCATE 2,y+1:PRINT CHR$(246):o=0:i$=UPPER$(INKEY$):IF i$="" THEN 5 ELSE
SOUND 1,200,9:w=INSTR(y$,i$):ON w+1 GOTO 5,6,7,8,10,10:IF w=6 THEN PAPER 0:PEN 1
:MODE 2:END ELSE LOCATE 2,y+1:PRINT" ":y=y+(w=8 AND y>1)-(w=7 AND y<c):GOTO 5 [4
4]
6 IF o=1 THEN FOR f=1 TO 26:x$=MID$(t$,f,1):PEN#5,2-SGN(INSTR(w$,x$)):PRINT#5,x$
;:NEXT:RETURN ELSE CLS:CLS#2:CLS#5:s=0:c=0:y=1:PEN#1,3:INPUT#1,"",x$:w$="":FOR f
=1 TO LEN(x$):a$=MID$(x$,f,1):w$=w$+UPPER$(STRING$(1-INSTR(" ",a$),a$)):NEXT:r=L
EN(w$):GOTO 4 [CD]
7 IF y>c THEN 5 ELSE x$=k$(y):w$=w$+x$:s=s-LEN(x$):PRINT#3,"   "k$(y):FOR f=y TO
c:k$(f)=k$(f+1):NEXT:k$(f)="":CLS:c=c-1:PEN 3:PRINT:FOR f=1 TO c:PRINT "  "k$(f)
:NEXT:GOTO 4 [] [35]
8 PEN 1:b=0:LOCATE 3,c+2:INPUT"",x$:x$=UPPER$(x$):q=LEN(x$):IF q=0 THEN 5 ELSE L
OCATE 3,c+2:PRINT x$:j$=w$:FOR f=1 TO q:h$=MID$(x$,f,1):m=INSTR(j$,h$):IF m>0 TH
EN LOCATE 2+f,c+2:PEN 3:PRINT h$:LOCATE#1,19-p/2+m,1:PEN#1,0:PRINT#1,h$:MID$(j$,
m,1)="*":b=b+1 [2A]
9 NEXT:IF b<q THEN CLS#4:PRINT#4,SPC(15)"<SPACE>":WHILE INKEY$<>" ":WEND:LOCATE
3,c+2:PRINT SPC(13):GOTO 4 ELSE c=c+1:LOCATE 3,c+1:PEN 3:k$(c)=x$:PRINT x$:w$=""
:FOR f=1 TO p:x$=MID$(j$,f,1):w$=w$+STRING$(1-INSTR("*",x$),x$):NEXT:s=s+b:GOTO
4 [33]
10 IF w=5 THEN CLS#3:PRINT#3:GOTO 5 ELSE CLS#1:FOR g=0 TO 1:FOR f=1 TO p:a=INT(R
ND*p)+1:m$=MID$(w$,a,1):MID$(w$,a,1)=MID$(w$,f,1):MID$(w$,f,1)=m$:NEXT f,g:GOTO
4 [05]
```

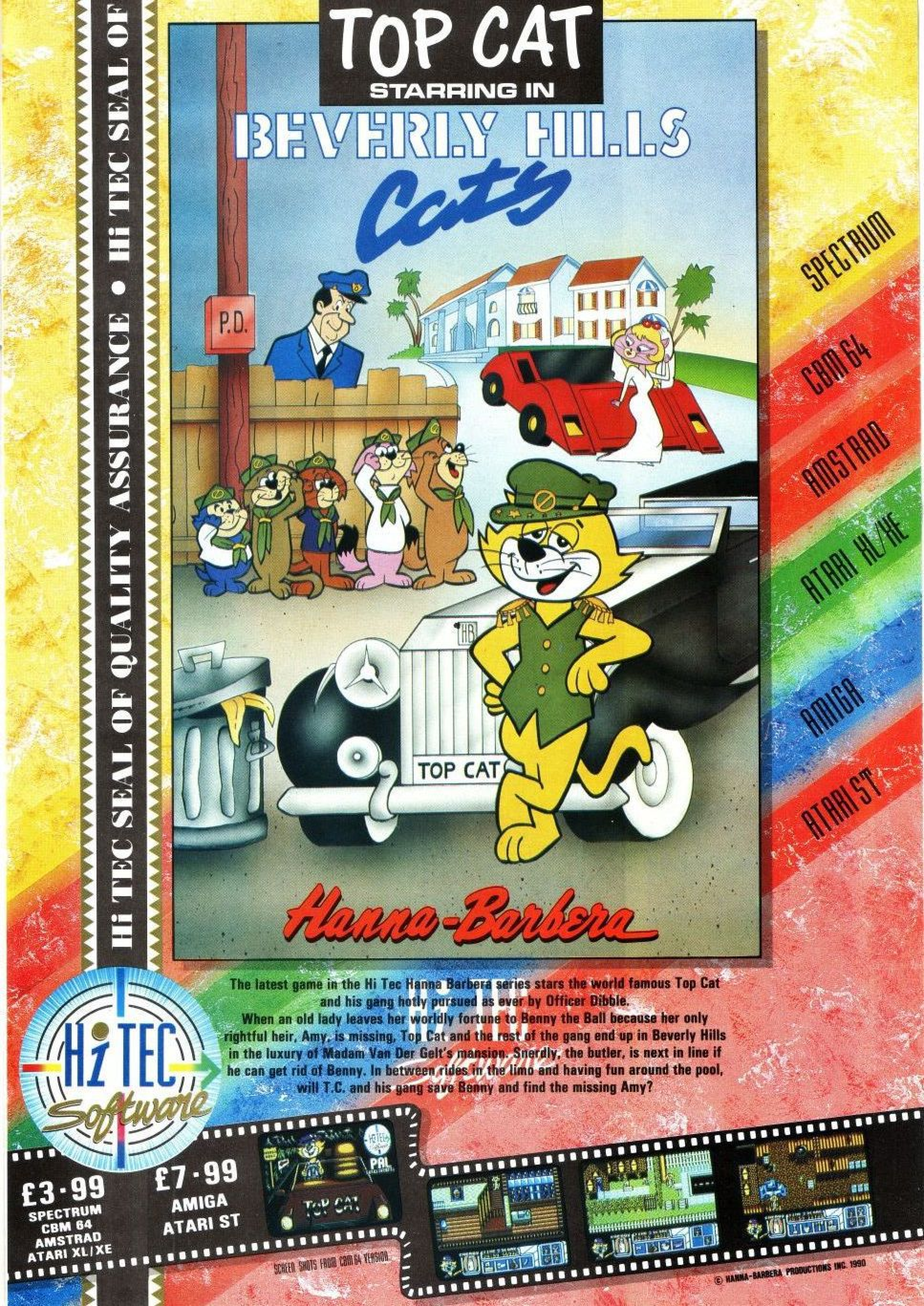
ROMANS

By Paul Jones

Here's a nifty routine to find out what all those Roman Numerals stood for. Run the program, input your numbers and look out for the computer response.



```
1 ' ROMAN NUMERAL GENERATOR
2 ' by Paul Jones
3 ' 1990 (MCMXC)
4 '
10 MODE 1:PRINT "ROMAN NUMERAL GENERATOR":PRINT:INPUT "Enter Number: ",r:IF r<1
OR r>3999 THEN RUN ELSE LOCATE 20,3:PRINT"is ";
20 IF r<4 THEN h=r:a$="I":GOSUB 50:END ELSE IF r=4 THEN PRINT"IV";:END ELSE IF r
<9 THEN PRINT"V";:r=r-5:GOTO 20 ELSE IF r=9 THEN PRI
NT"IX":END ELSE IF r<40 THEN h=INT(r/10):a$="X":GOSUB 50:r=r-(h*10):GOTO 20
30 IF r<50 THEN PRINT"XL";:r=r-40:GOTO 20 ELSE IF r<90 THEN PRINT"L";:r=r-50:GOT
O 20 ELSE IF r<100 THEN PRINT "XC";:r=r-90:GOTO 20 E
LSE IF r<500 THEN h=INT(r/100):a$="C":GOSUB 50:r=r-(h*100):GOTO 20
40 IF r<900 THEN PRINT "D";:r=r-500:GOTO 20 ELSE IF r<1000 THEN PRINT "CM";:r=r-
900:GOTO 20 ELSE IF r=1000 THEN PRINT "M":END ELSE I
F r<4000 THEN h=INT(r/1000):a$="M":GOSUB 50:r=r-(h*1000):GOTO 20
50 FOR n=1 TO h:PRINT a$;:NEXT:RETURN
```



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Hello again, hackfans. They've dragged me out of hibernation again to preside over another hacker's haunt, and I'm out of desk space. This means that this hacker's is brought to you from on top of the fridge, and somebody has sloshed milk all over my keyboard and screen. Don't worry though, it'll be all white.

Useful hint: If you drop gunk on a keyboard, turn it upside-down immediately, and let it dry that way. Damned thing needed a clean anyway, and a couple of drops of meths on a tissue cleans the screen beautifully. So let's go over the checklist: Dried keyboard, clean screen, popcorn, sell-by soup, beer, and mailbag. Yup, all set and off we go.

Remember last month's Nagles ? Well, Duncan Nagle penned more pokes than Peter Piper picked pickled peppers, so we'll start off with a few of those, I think. Pokes, not pecks of pickled peppers.

Duncan's opening shot is at Advanced Pinball Simulator. Apparently, you need to pause, type HENLEY, and start it off again. Now play with J, X, and C. My balls have never done that before. Must've left the fridge door open.

How far have you got with Gemini Wing then? Level 4? 5? Too embarrassed? I fit in to one of the above categories, but I'm too shy to tell you which. No longer! Here are the level passwords; read, type, and enjoy:

Level 2 THESTART
Level 3 EYEPLANT
Level 4 WHATWALL
Level 5 GOODNITE
Level 6 SKULLDUG
Level 7 BIGMOUTH
Level 8 CREEPISH

Now something to make your Thunderbirds go, to perk up Parker, shift Scott into shape, and boost your Brains, we have this list of passwords. Type 'em in, and tell them Vax sent ya:

Level 2 RECOVERY
Level 3 ALOYSIUS
Level 4 ANDERSON

Ah yes, he's rumbled Renegade as well, to the point of raising you to the next level. Just hold down Q, U, I, and T to promote yourself. Unfortunately, it doesn't increase your performance with the joystick, and things get a little hectic on the higher levels...

OK, one more Nagle, and that'll be enough from him until next month. Here's what you need for levels 2 & 3 of Mr Heli. Probably means something in Swahili too:

Level 2: CACSFAAAAUAEDIAD-CKCY
Level 3: DECIHAFAAUAISAAD-CDBR

Well done that Nagle chappie. Watch that draft-includer in your front door,

Paradise Regained

VAX brings you lots more from the land of Hack to beat away those losing blues



'cos there might be something other than the Zummerzet Tymes and Add-Rag coming through it.

Next out of the popcorn packet, I mean mailbag. Too many bags on this fridge. Where was I, ah yes, eating letters. We have more from the Amazing Graham Smith of Brookzide, starting off with an illuminating infinite-life-type pokette for a Soldier of Light. By the right, quick, type. Lead on sergeant-major:

1 ' Soldier of Light 2 ' By Graham Smith 3 ' Infinite lives 4 '

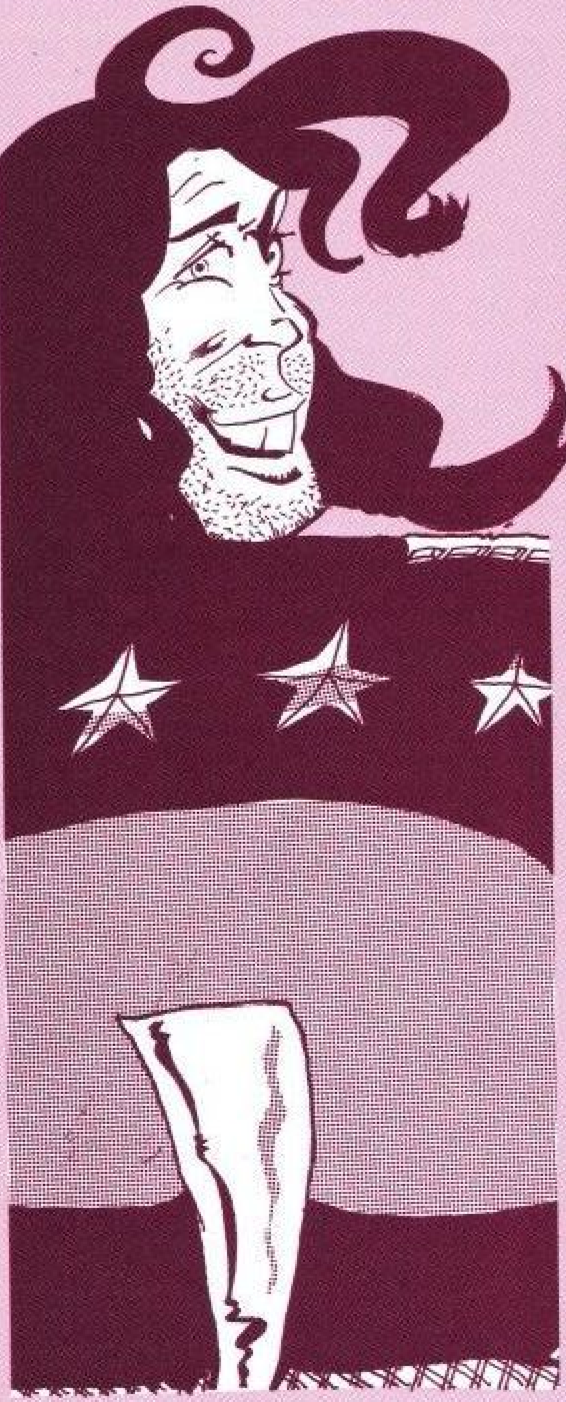
```
10 DATA af,32,fa,57,32,49
20 DATA 5a,c3,08,07,21,68 30 DATA
05,22,9c,05,0,1,2
40 DATA 11,20,26,13,3,6,15
50 DATA 24,12,18,4,8,16
60 FOR j=0 TO 15:READ a$
70 x=VAL("&"+a$):y= y+x
80 POKE j+1384,x:NEXT j
90 IF y<>1322 GOTO 150
100 OPENOUT"d":MEMORY 999
110 CLOSEOUT:LOAD"loader
120 FOR j=0 TO 15:READ a
130 INK j,a:NEXT j:MODE 0
140 BORDER 0:CALL 1394
150 PRINT"Data error, Sir!
```

Zo Herr Smith, you get zis strange urge to take der games to pieces, und send in der cheats for ze Hairy Hacker columns eh? Vell, I sink zis is perfectly normal behaviour, und you must sink zis vill result in der goodies coming through der letter hole, ja?

Enough of der, sorry, the German accent. This is time for a perfectly sane and normal poke for psycho hopper, so I'll step outside for a couple of minutes. Stick this lot in your CPC and analyse it:

1 ' Psycho Hopper -tape- 2 ' By Graham Smith 3 ' Infinite lives 4 ' More time 5 ' 10 DATA af,32,03,03,3e,09 20 DATA 32,46,21,c3,03,8e 30 DATA 21,9d,a3,22,c6,a3 40 FOR j=0 TO 17:READ a$ 50 x=VAL("&"+a$):y=y+x 60 POKE j+41885,x:NEXT j 70 IF y<>1543 GOTO 100 80 MEMORY 41000:LOAD" 90 CALL 41897 100 PRINT"Data error, hop to it.

Now, for those of you who thought Pipe Mania was for people who went ape over Briars, Hubble-Bubbles, Meerschaums, and dark shag, Graham has news for you. This is a disk-type pokeykins for turning anyone into a plumber, mate. It slows the countdown, presumably so that you can hand over a bigger bill at the end of the day. Flush



this down your U-bend:

1 ' Pipe Mania -disc- 2 ' By Graham Smith 3 ' Slows countdown 4 '

```
10 DATA 21,e4,07,22,e5,c7,c3
20 DATA d0,c7,e5,21,f9,25,36
30 DATA cd,23,36,f4,23,36,07
40 DATA e1,c3,68,bc,dc,ec,25
50 DATA 3a,ff,25,ee,8a,32,ff
60 DATA 25,c9,0,2,13,15,11,20
70 DATA 24,3,6,16,22,18,4,8
80 DATA 26,9:MODE 1 90
FOR j=0 TO 36:READ a$
100 x=VAL("&"+a$):y=y+x
110 POKE j+2011,x:NEXT j 120
IF y<>5042 GOTO 200
130OPENOUT"d":MEMORY2000140
PRINT"Insert game disc ";
150 PRINT"then press any key"
160 CALL &BB18:MODE 0
170 FOR j=0 TO 15:READ x
180 INK j,x:NEXT j
190 LOAD" screen .scr":CALL 2011
200PRINT"Someone can't type straight
```

Yeah, yeah, I know. Ikari warriors has produced more hacks in this column than there are in Friday 13th part 4. I don't care though, 'cos this one has everything in it; infinite lives and ammo, no soldiers, and even total invulnerability so that even a real klutz can do it. Well almost, 'cos you've got to type in this lot first:

1 ' Ikari Warriors (Encore) 2 ' By Graham Smith 3 ' Choice of infinite lives, 4 ' infinite ammo,no soldiers 5 ' and Invulnerability 6 '

```
10 DATA 18,09,af,67,6c,32,14
20 DATA 69,22,15,69,18,05,3e
30 DATA c9,32,a0,1f,18,05,3e
40 DATA 18,32,38,6a,18,05,3e
50 DATA c9,32,61,18,c3,d0,ff
60 DATA 48641,Infinite lives
70 DATA 48652,Infinite ammo
80 DATA 48659,Invulnerability
90 DATA 48666,No soldiers
100 DATA 13,6,3,15,16,0,1,2,14
110 DATA 26,24,9,12,21,22,19
120 MODE 1:DEFSTR a-b
130 FOR j=0 TO 34:READ a
140 x=VAL("&"+a):y=y+x
150 POKE j+48640,x:NEXT j
160 IF y<>2735 GOTO 320
170 FOR j=0 TO 3:GOSUB 260
180 NEXT j:MODE 0:BORDER 2
190 FOR j=0 TO 15:READ x 200
INK j,x:NEXT j:OPENOUT"d"
210 MEMORY 4777:CLOSEOUT
220 PRINT"Press PLAY then "
230 PRINT"any key":CALL 47896
240 LOAD"!screen.bin
250 LOAD"!warriors":CALL 48640
260 READ x:READ a:PRINT
270 PRINT a;"? (y/n)";
280 INPUT b:IF b="n" GOTO 310
290 IF b<>"y" GOTO 270
300 POKE x,0
310 RETURN
320 PRINT"data error
```

And now for Graham's last little pokeykins for this month. Has he ducked out, or quacked up? Maybe he's just feeling down, but anyway, here's Count Duckula for you:

1 ' Count Duckula -tape- 2 ' By Graham Smith 3 ' No nasties 4 '

```
10 DATA 3e,c9,32,6e,0f,32
20 DATA 1b,10,32,c7,10,32
30 DATA de,11,c3,98,08,06
40 DATA 00,11,64,00,cd,77
50 DATA bc,21,41,00,22,9c
60 DATA 00,af,cd,0e,bc
70 FOR j=0 TO 34:READ a$
80 x=VAL("&"+a$):y=y+x
90 POKE j+65,x:NEXT j
100 IF y=2945 THEN CALL 82
110 PRINT"data error
```

No nasties eh? Must try that on my little brother.

Oh well, that's it for this month. I'll have to pack it in and get me some beauty sleep. Let's face it folks, I need a helluva lot of that.

Love 'n' stuff, Vax, Suz & the Brats

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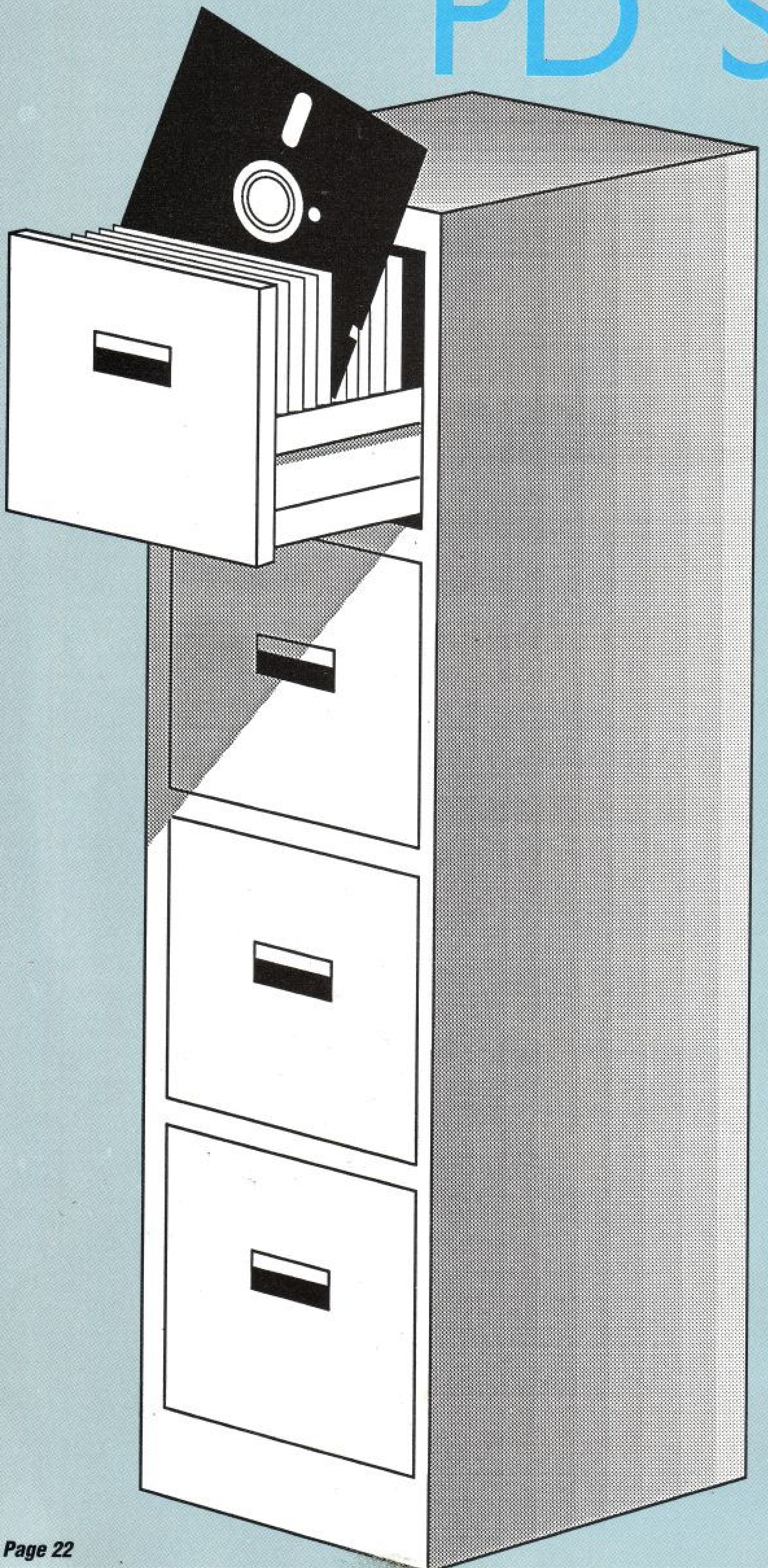
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PD Scene



Paul Tint casts his beady eye over clip art, multifacing and reminds you that you only gets what you pays for

Stop Press clip art is expensive. At £12 per disk, a worthwhile collection would cost a fortune. Luckily there is a (much) cheaper alternative... the public domain.

Many of thePD libraries will have disks of clip art. As well as graphics, these may also contain extra fonts, digitized pictures, and large fonts. The latter is very interesting. No longer do you have to put up with the blocky effect caused by enlarging, now you can produce large headlines with clean, smooth edges.

Obviously, these are not used the same way as the normal fonts are. Strictly speaking, they are not fonts at all, but a series of large letters saved as cut outs and placed on screen using cut and paste. Although this method is more time consuming, the results make it all worth while.

These larger fonts are usually 1 inch high (the maximum enlargement of the smaller fonts), although there are 2 inch fonts available. Add to this the graphics and the giveaway price of PD software, and you're onto a winner here. As I said before, most libraries have Stop Press clip art, however Scull PD is the only library (to date) with the large fonts.

Remember, in addition to disks specified as 'Clip Art', you may find it useful to order disks of normal art and pic-



tures. Stop Press, and most other DTP packages, allow you to load normal 17K screens, so why not take advantage of this? Art disks are just as readily available, and just as cheap!

A POKE A DAY KEEPS THE MONSTERS AWAY!

Hands up everyone who has a multiface and uses it to poke games. Wouldn't it be handy to have access to hundreds of multiface pokes at your fingertips? Ah! What you need is a multiface database.

There are two multiface databases in the PD. One of them is menu driven and allows you to search, load, and add pokes. However, only 200 pokes are possible (160 are contained to start with). The other lists details of over 300 pokes, however, pokes can not be added to this database.

Whichever database you get, I'm sure you'll find it very advantageous.

THE CYNICAL VIEW

Since this column started, many readers will have sent to at least one PD library for software. However there is always a small section of people who will think "the software is free, so why should I have to pay for it". While these people are entitled to their own opinion, I think they are being a little unfair; running a PD library is not just a case of copying disks, theres a lot more to it, and everything costs money.

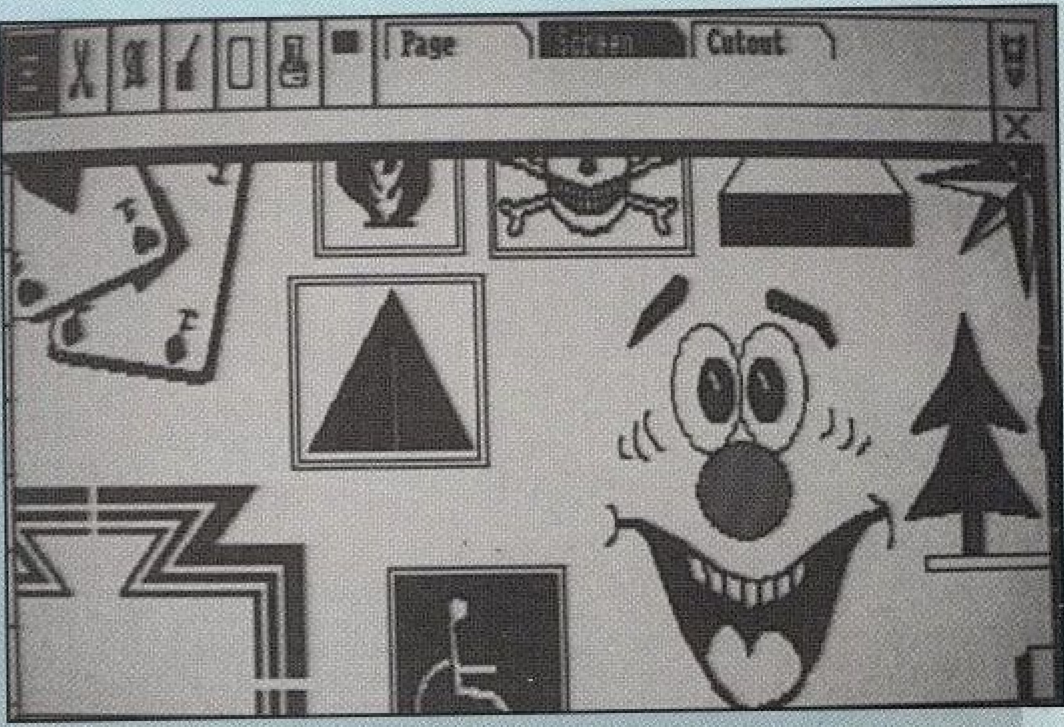
For a start, consider the cost of disks. For a library with, say, 40 disks of software, they have to pay £80 just for the masters and another £80 for backups. Of course it doesn't stop there, the library will be ever expanding so more disks need to be bought, and don't forget the costs of photocopying/printing for the stock lists. Then there's the phone bill, it is known to triple in most cases.

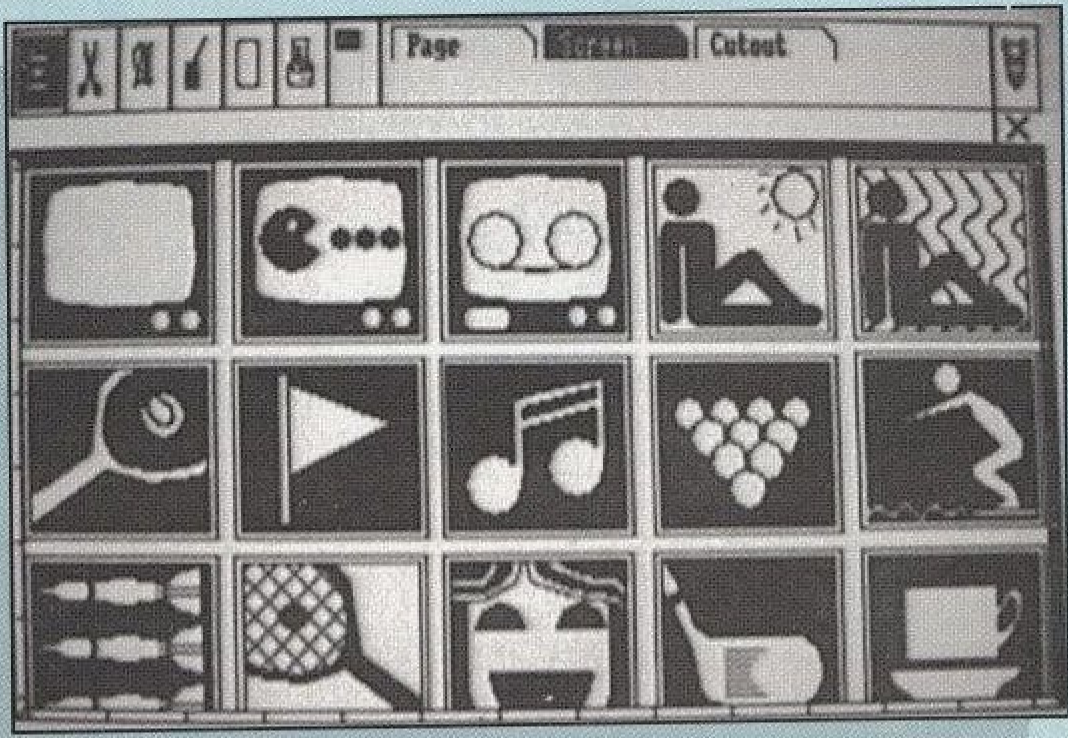
If I've still not convinced you that the small copycharge made by the PD libraries is essential then consider the amount of time spent updating order forms, answering phonecalls of help, and, most of all, organising disks. Many PD librarians spend up to 5 hours each night trying to keep their pride and joy ticking over, so don't grudge paying for their time, they do earn it!

WHERE TO GO

To get your grubby mits on some PD then contact any, or all, of the following libraries:

- Scull PD Library, 119 Laurel Drive, East Kilbride, Glasgow G75 9JG or phone Alan on 03552 24795. Send an SSAE for a copy of the concise stock list, or a disk and SSAE for a copy of the free Stock List Disk Magazine which also contains a free adventure and a free demo. To sample their wares, send £1, a disk, and SSAE.
- Data PD Library, 202 Park Street Lane, Park Street, St Albans, Herts AL2 2AQ. Send an SSAE or 30p to recieve a copy of the Data Newsletter. Alternatively you can send a disk/cassette, 50p and SSAE to recieve the 'Data PD Starter Pack' which contains a mixture of programs to get you started. Data supports both cassette and disk PD, and overseas orders are welcome (send £3.50 extra for disk and postage is to be supplied).
- Adventures PD, 10 Overton Road, Abbey Wood, London SE2 9SD or phone Debby on 081 310 9877. Send an SSAE for a copy of the catalogue. Prices are £1 per selection (one side of a disk), or £4.50 for two selections, including the disk.





- Demon PD, 47 Hilton Avenue, Hall Green, Birmingham B28 0PE. A new library run by Chris Small and David Long. Their range includes mainly demo disk. For more details, send an SSAE.

GET IN TOUCH!

If you run a PD library and want some free publicity then why not send me some of your software? Just pop a disk or cassette (disks preferred), your stock list and all relevant details in a Jiffy Bag to The Public Domain Column c/o ACU. If you want your disks returned then include an SSAE.

You don't have to run a PD library to get in touch either. If you have some general comments about PD software, or have praise or complaints about a certain library, then just drop me a line.

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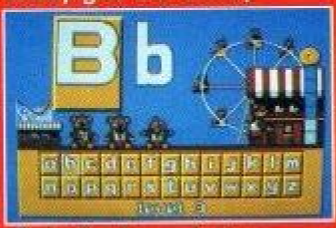




Under 5s



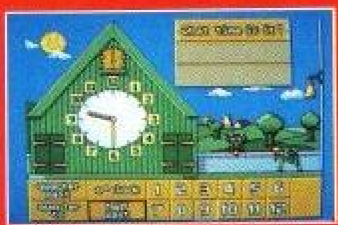
Count up to nine to help teddy get the honey



Pair the large letters at the alphabet fair



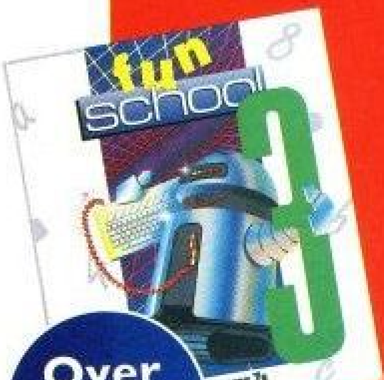
5 to 7s



Tell the time and watch the clock come alive!



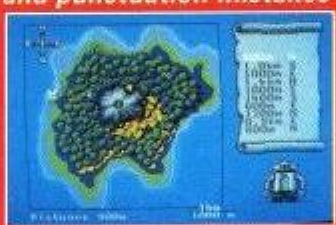
Guide the frog from log to log to solve the sums



Over 7s



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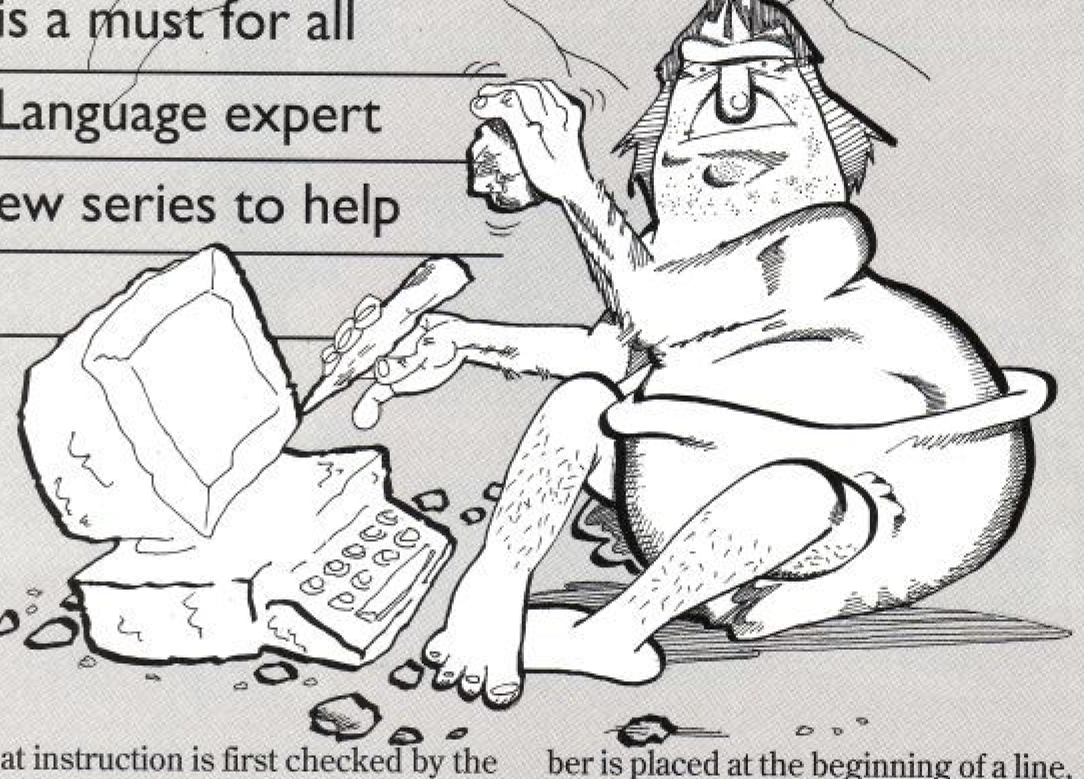
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IN THE BEGINNING...

Getting a grip on BASIC is a must for all would-be programmers. Language expert Glynne Davies begins a new series to help you do just that.



Can you meet the challenge? Have you a logical approach? The computer you sit in front of will only do what the software within it tells it to. The challenge of programming is to make the computer do what *you* want it to! There are many computer languages (Pascal, Cobol, C, Basic, Fortran, Modula, Ada, Prolog etc), all have advantages and disadvantages.

Over the next few months, I intend to develop in you a clear understanding of the language called BASIC so you can make your computer useful. Buying software is an expensive business, programming is only expensive on your time.

There are two main disadvantages in BASIC; one is the name (Beginners All purpose Symbolic Instruction Code), placing BASIC at the bottom of the pecking order because of it and the second disadvantage, a key word; GOTO, the use of which leads to unstructured programs making them difficult to read and understand. By the end of this course you will be able to say that you know enough about BASIC to call it ADVANCED and throughout this course you will never see the Key word GOTO used within a program.

Introduction to the Basic Language
The BASIC language is a set of key words, some of these key words are followed by numbers or characters, the correct way of spelling these key words or order of characters and numbers is called the SYNTAX of the language. Each key word forms an instruction which tells the program called BASIC what to do next. Since the beginning of the BASIC language in the early sixties, many versions have been developed, each with their own idea of the Syntax, new key words being invented to suit the capabilities of new machines.

BASIC as a language can be used in two ways, either as a set of instructions or as a single instruction. If a single instruction is typed into the computer and the Return (Enter) key pressed, that instruction is first checked by the Basic program to see if it is understood. If it is, the Basic program converts the instruction from an English type word to a series of codes that the computer can understand: (Machine Code). The function is carried out and any information created is sent back to the Basic program. This process is called interpreting, Basic acts as interpreter between a form of pigeon English and the code the machine understands. When an instruction typed in is not understood by the Basic program a message is placed on the screen telling of the error.

Direct Mode
Most of the key words in the Basic language can be used simply by typing the key word with it's number of character and then pressing Return (Enter) key. This is called Direct Mode and, once the instruction has been carried out, new instructions must be typed in – there is no memory of previous instructions. Some key words in Basic are used most of the time in Direct Mode, like the key words LOAD, SAVE, RUN, LIST and RENUM.

Program Mode
Using the Basic interpreter in Program Mode means typing in a series of lines containing the Basic key words, in Program Mode none of the key words within the lines are interpreted until the key word RUN is Entered in Direct Mode. When you switch on the Amstrad 464 or 6128, the Basic interpreter is automatically loaded and a simple word processor (Editor) is displayed allowing data to be typed in. If a number is placed at the beginning of a line, the interpreter is in Program Mode, if no line number is typed the interpreter is in Direct Mode.

Program 1
The key words used in program 1 are described below:

REM The key word REM, short for REMark, allows the programmer to write notes within the program listing, anything written after the key word REM is ignored up to the position when the Return (Enter) key was pressed. REM is one of the most important key words in the Basic language, notes or headings can be placed within the program listing making the listing easier to read and understand. This course on Basic will use the REM key word extensively to describe how a program works.

CLS CLS means CLear the Screen, in most cases the programmer has no idea what was on the screen before, therefore a CLS is usually used as one of the first instructions within a program.

PRINT The key word PRINT displays information on the screen, the information to be displayed on the screen is placed after the key word PRINT i.e.

PRINT 12

or a series of characters

PRINT "A word or sentence up to 256 characters"

NOTE:- When words or characters are written they must be enclosed within

quotes (""), the quotes signify to the Basic interpreter the beginning and end of a string of characters, the word string is used to describe a series of characters. Why was the key word called PRINT? because in the early 1960s, when Basic was invented, all information was displayed on a Printer.

: The colon (:) is used to separate instructions. If the colon were not used a new line number would be needed for each key word used. The colon allows key words to be placed on the same line. (Without the colon 10 Liners would not exist)

END End stops and returns to the Direct Mode.

Direct Mode commands used for program 1:

LIST The key word LIST is used to display the program listing, when typing in a program each line typed is memorised by the computer in numeric order (lowest line number to the highest). You can type the lines in any order and to see how the computer has memorised these lines type LIST and press return (Enter).

RUN When the key word RUN is typed in and the Return (Enter) key pressed, the basic interpreter starts from the lowest line number, reading the instructions (Key words) and if the instructions are understood, the action is carried out. A program when being "Run" can be seen as a flow, starting at the lowest line number and maybe jumping within the listing to another section eventually coming to the key word END to finish the program.

PROGRAM 1

Type in the following program listing, press the Return (Enter) key at the end of each line before typing the next line number. Type the whole listing as below in lower case (small letters), unless the letter is after a rem statement or within quotes. Look out for spaces between commands, these must be included by pressing the Space bar.

```
10 rem Program 1 ( Program and Direct Modes )
20 cls:rem CLear the Screen
30 print "The Amstrad Computer User Magazine":rem Note the information within the quotes ""will be displayed on the screen.
40 print:print "Program 1........Basic Programming is Easy":rem There are two commands on this line separated by a colon. The first PRINT statement Prints a blank line providing a line space between the two statements
50 end:rem Finish the program here.
```

When you have typed in the above program, Enter (Type in the word and press the Return (Enter) key).

list

You will now have both listings on the screen the one you typed in and the computer memory of your listing as below.

```
10 REM Program 1 ( Program and Direct Modes )
20 CLS:REM CLear the Screen
30 PRINT "The Amstrad Computer User Magazine":REM Note the information within the quotes "" will be displayed on the screen.
40 PRINT:PRINT "Program 1........Basic Programming is Easy":REM There are two commands on this line separated by a colon. The first PRINT statement Prints a blank line providing a line space between the two statements
50 END:REM Finish the program here
```

NOTE:- All the key words are now shown in Capital letters, this is an excellent feature of the Amstrad Basic, it shows you if you have incorrectly spelt a key word by leaving it in lower case. Check your listing to see if it is correct and Edit the program if necessary.

EDITING If you need to change (Edit) any of the lines, hold down the SHIFT key and press the up arrow key, two cursors will be visible on the screen, keep the SHIFT held down and move one of the cursors tothe beginning of the line you wish to edit, release the two keys and press the COPY key, a copy of the line will be created at the bottom cursor, move to the position that needs correcting and type in any new characters. You can move the copy cursor to any position on the screen by pressing SHIFT with any of the arrow keys and copy any new characters on to the new line being produced at the original cursor. When this line is complete, press Return (Enter) and then list the new program to see the result.

The Moment of Truth...Running

Now to the program, what does it do (Not a Lot!). To make the program work you Enter

run

Providing no errors are found by the interpreter the screen will clear and the two statements will be displayed. If any errors are detected the interpreter will place you in an editing mode. Correct the error and RUN again.

RAM (Random Access Memory)

Program 1 is stored in memory, this memory called the RAM can only contain information while the computer is switched on, if the computer is switched off all the information is lost. It is therefore necessary to have a method of storing your listings so that you can use them again. This is where the Tape recorder or the Disc Drive is used.

BACKING STORE (Tape or Disc)

To place information on Tape or Disc the Direct Mode command SAVE is used, to retrieve that information the key word LOAD is used. When saving a program listing a file name is used, the disc is limited to file name of up to 8 characters and most computers restrict the name to that length. I would therefore suggest that file names are used from 1 to 8 characters, although using the Tape you can have from 0 to 16 characters.

When choosing a file name think carefully about the name chosen, it needs to describe the program. When you have 50 file names on a disc you need to know from the file name which program it is.

SAVE

To Save Program 1 onto disc or Tape Enter

save "program1"

The listing will be saved to disc or tape. Note the file name can not have spaces within it. You need to Save programs at regular intervals when developing a listing, a short waiting time while the part finished listing is saved is worth while, if you lose the listing you can always go back to the most recent saving. (Always save a listing before running, some errors in programs cause no keyboard input and therefore the only way to continue is to switch off).

NEW The key word NEW needs to be used with care, it wipes the memory clean, when you have saved a program and wish to start another, type NEW and the listing memory will be erased.

CAT To find out what's on your disc or tape Enter CAT, this will show a complete Catalogue of the disc in your dive or if using tape the program names when encountered. (Tape Cataloguing is extremely slow, you really need short tapes with only one program at the beginning).

Continued on page 28 ▶

LOAD To bring back (Load) a program from disc or tape use the key word LOAD. When you Load a listing from the disc or tape whatever was in the listing memory is erased, it is a common mistake with first time users to use Load instead of Save and sometimes this can lead to the loss of your listing. Lets load in the listing PROGRAM1. To see the result we need to clear the present memory because they are both the same listings. Enter NEW to clear the memory, LIST to prove the memories empty and then Enter

```
load "program1"
list
```

You should now have the program back in memory.

VARIABLES

A variable is a name given to a letter or a word which is used to represent a number or a series of characters (String). When a variable is set by the program a piece of memory is set aside and labelled by the name chosen, the contents of that memory can be copied or changed with reference to the name. To set a variable make the name chosen equal to the information as below.

```
score=500
townname$="Manchester"
```

The two variables above have been set up in Direct Mode to find out the values stored Enter

```
print score
print townname$
```

The memory of the two variables will stay within the computer until you Run a program or switch off. This enables large programs to be tested by stopping the program at a certain point and printing out the variables used within the program to see if they match the expected values.

Two distinct types of variables are available; a Numeric variable which represents a number and a String variable which represents one or a series of characters, the only difference in the variable name is the dollar sign ($), best referred to as the word String. When looking at the variable above called townname$, think of it as townname string.

When choosing variable names within your programs, use meaningful words which best describe the variable's function within the program.

NUMERIC VARIABLES

A numeric variable represents a number. You can carry out mathematical functions on one or more numeric variables i.e. + - * / (Note the Times * and Divide /). Any name can be chosen for a numeric variable providing the name is not a Basic Key word, this is not a problem with Amstrad basic if you work in lower case (small letters) and LIST your program before running. Any variable chosen which is a key word will be listed in upper case (Capital letters) and will therefore need changing. As already stated, the choice of variable name is important as it can help the readability of the program listing.

NEW KEY WORDS

; The semi-colon within a Print statement holds the cursor on the line being printed, allowing sentences to be built up from a number of statements. (See lines 60 and 70 below).

Type in the program below, ensure the memory is clear using NEW before you start, as parts of the previous program could remain in this new program if the line numbers are different. Note:- use lower case for the key words, the listing below shows the finished result. All listings from now on will have the key words in upper case.

```
10 REM Numeric variables
20 CLS:REM CLear the Screen
30 top=25.57:REM Set a piece of memory to 25.57 and call it "top", the length of the top of a rectangle
40 down=16.36:REM Set down to 16.36. The width of the rectangle. The natural choices "length" and "width" for these variables have been avoided LEN and WIDTH are key words.
50 costpermetre=23.12:REM Choose meaningful words. Note no spaces are allowed in variables
60 PRINT "For the length of ";top;" and the width of ";down;" the area is ";top*down:REM All printed on the same line. Note the Maths top times down at the end.
70 PRINT:PRINT "If the cost per metre is ";costpermetre;" the total cost is ";top*costpermetre
80 END
```

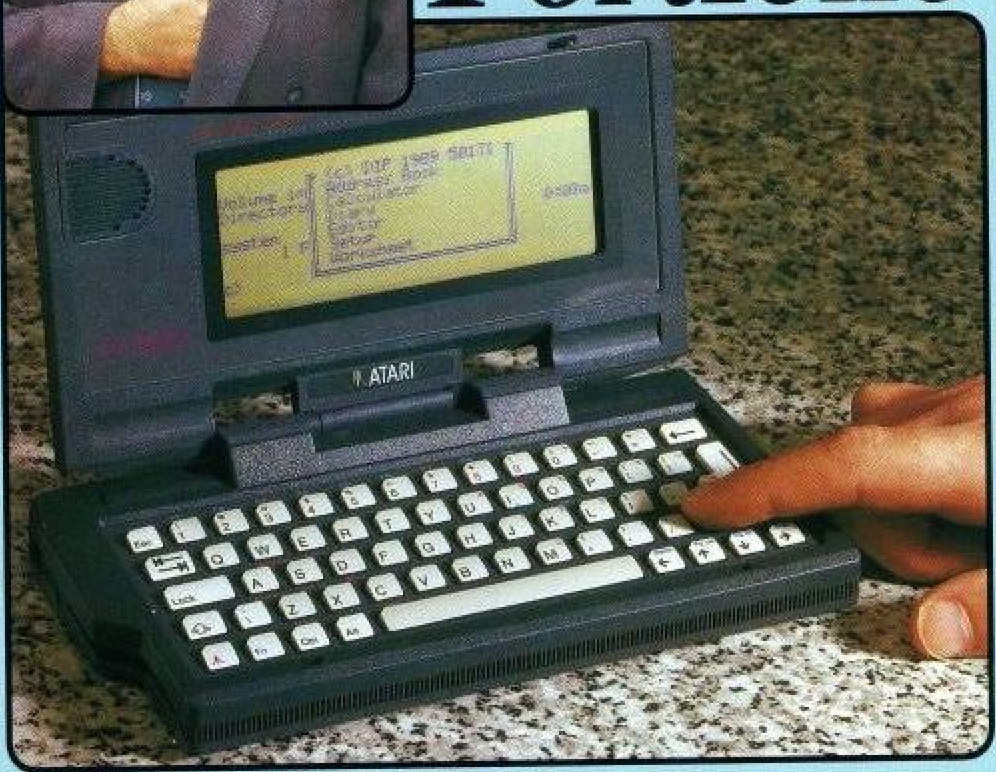
When complete List the program and check it, Save it and then Run it. Refer back to the listing, working out what each line is achieving. This ends this month's introduction to the basic language. The following program is an example of programs to come, you should be able to make out some of the lines and others will become clear after next month when we will look at Strings and Loops.

```
10 REM Little professor
20 MODE 0:REM Title screen
30 LOCATE 3,12:PRINT "LITTLE PROFESSOR"
40 LOCATE 5,22:GOSUB 300:REM use the Press any key subroutine
50 MODE 1:REM Set to 40 columns
60 FOR goes=1 TO 10:REM Start of a loop
70 try=1
80 first%=RND(1)*12:second%=RND(1)*12:REM select 2 random numbers, the % at the end of the variable name ensures the number is a whole number.
90 PRINT
100 start=TIME
105 WHILE try>0:REM For loops see next month
106 IF try=3 THEN GOSUB 240:REM If you get the question wrong twice print out the answer as a table at line 240
110 PEN 1:PRINT TAB(8);"NO ";goes;" ";first%;" X ";second%;"=";
120 INPUT ans
130 PRINT
140 IF ans=first%*second% THEN right=right+1:sec=(TIME-start)/300:PRINT TAB(8)"Correct in ";ROUND(sec,2);"seconds":try=0:ELSE GOSUB 220
150 attempts=attempts+1
155 WEND:REM End of the While loop
160 total=total+sec
170 NEXT goes
180 PEN 2
190 PRINT:PRINT TAB(7);"Total time was";ROUND(total,2); "seconds"
200 PRINT:PRINT "You had ";attempts;" attempts and got ";right;" right"
210 END
220 REM incorrect answer
230 try=try+1:IF try<3 THEN PEN 3:PRINT TAB(8);"Incorrect please try again":PRINT:RETURN
240 sec=(TIME-start)/300
250 FOR n=0 TO first%:REM Show times table
260 IF n=first% THEN PEN 2:REM Change last line to light blue (PEN 2)
270 PRINT TAB(12);n;" X ";second%;" = “;n*second%
280 NEXT
290 PRINT TAB(14);
300 PEN 3:PRINT "Press any key":CALL &BB18:REM CALL &BB18 is a machine code call which waits until a key is pressed before moving on
310 try=0
320 RETURN
```

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Inside Information

The Doc dusts off his Multiface to check out an enhanced interface for closet hackers.



Whether you agree with them or not, the world is full of Multiface II users, and what I call 'Multi-Hackers'. Face it, many are the games that need some kind of poke to allow we mere mortals with less than pefect timing and hand-eye coordination to get to the end – the Hairy Hacker is testimony to the popularity of such things.

Ergo, the MFII provides a good method of slipping the odd NOP into the code to let you carry on unhindered in your latest megagame (I hope I'm getting the street-cred terms right here!). Now, as a fairly ardent non-gamesy type, I have little real interest in playing all of the latest ones, although I do enjoy them. However, when our illustrious editor asked me to have a look at Tearaway, I readily agreed. You see it offers some very useful facilities – read on.

First, what you need. Tearaway must have 128k RAM to play with, at least one 3" disc drive, and a Multiface II (preferably switched). Unexpanded 464 users need not apply.

The whole thing is menu driven, from the moment you install it into your machine until you switch off at the end – no bad thing. You'll doubtless be able to see what it looks like from the screen shots. The code that does the dirty work loads itself into both the CPC (high banks) and the 16k inside the MFII, and when you hit the red button on your MFII, takes over where you would normally expect to see RoRo's software.

After that, you can do all sorts with the code you've got. Apart from a very useful search routine, which incorporates a sort of wildcard facility (a new and intuitive way of searching), there's a full Z80 disassembler, a decent memory editor, and access to information on the Z80 registers, CRTC registers, pallette, interrupt status, and so forth. In short, there's almost nothing you can't find out about what's going on inside your machine.

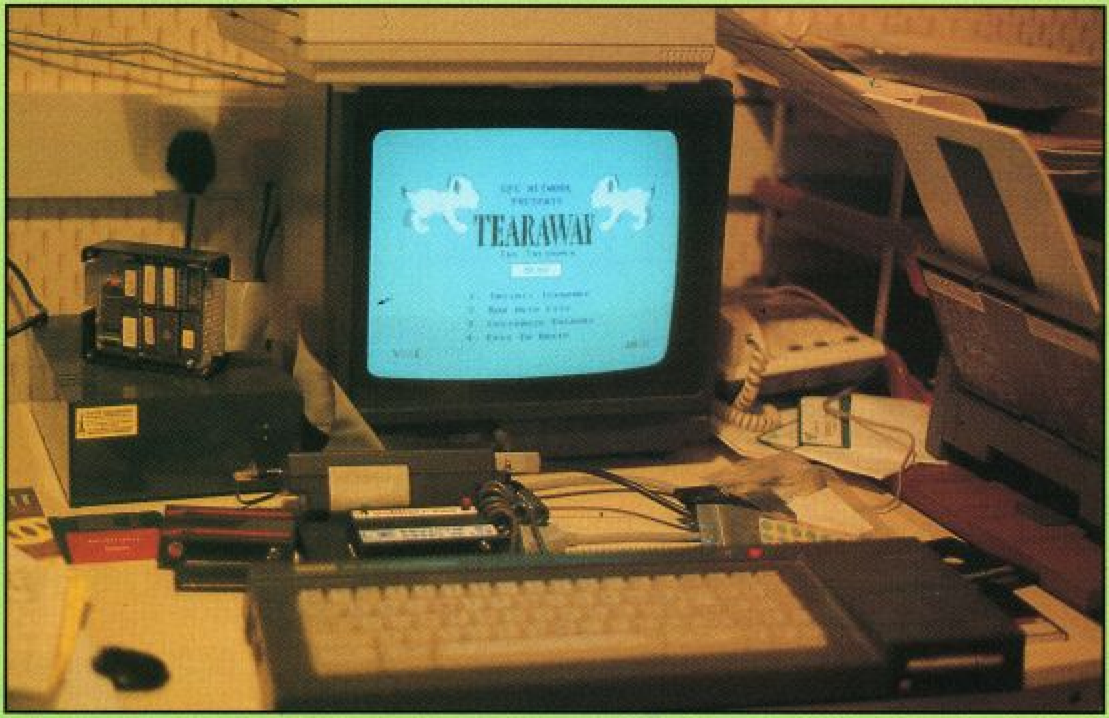
Now, since you can also alter everything, this power doesn't come without a price. There's very little to stop you from wrecking discs and tying your CPC in a knot – but then life without risk is boring in the extreme.

Now, to me, one of the most useful bits of the utility has to be the disassembler. I would never claim to be the kind of programming genius that Auntie John is, but I do like to see how the experts do it (and poke myself a few extra lives while I'm at it.) Tearaway won't only print to the screen, it also passes very good quality output to the printer – and hardcopy is very useful to learn from.

In short, Tearaway makes the Multiface II very easy and simple to use – no more itty-bitty windows to confuse you, since you've got a full mode 2 screen to play with – and will, I feel, prove to be a useful tool.

Pricing is also pretty good. £7.50 and a 3"disc will get you the package, or £10.50 if you don't send the floppy.

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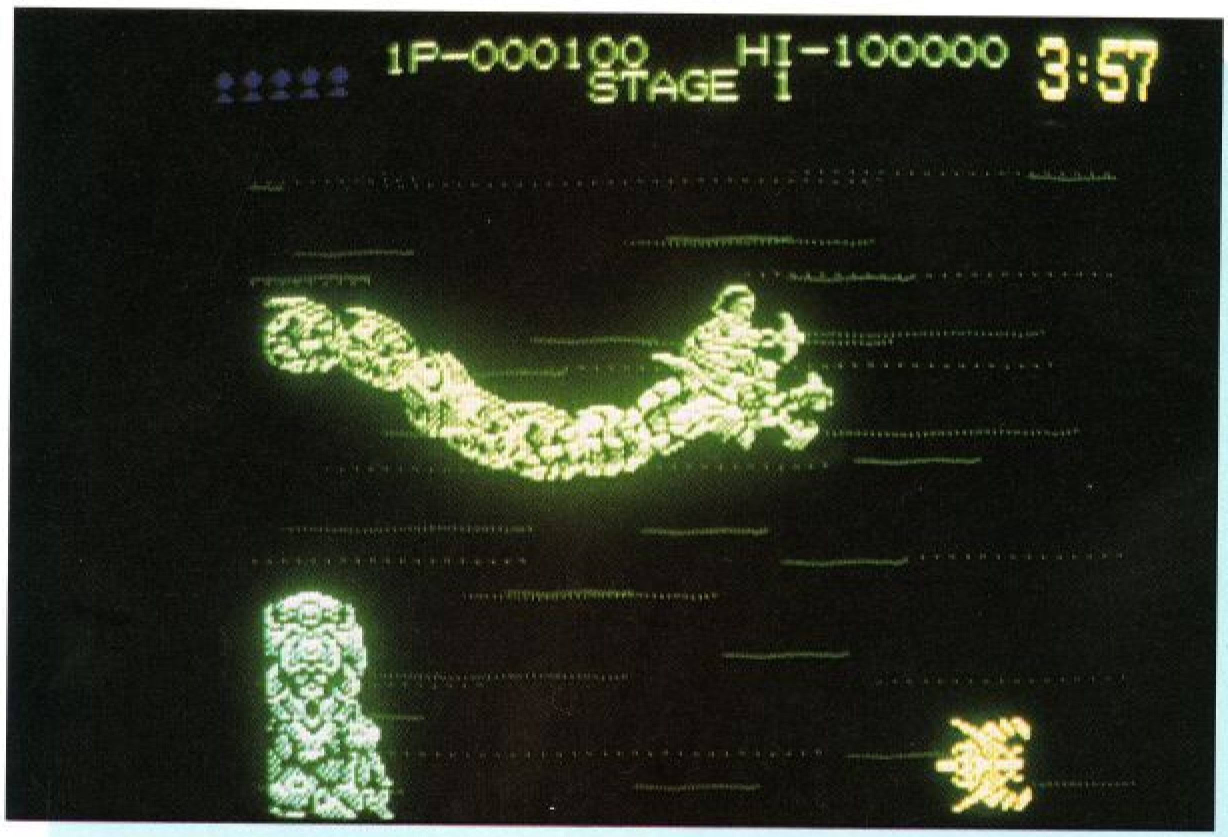
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4	(18)	Quattro Arcade	Code Masters
5	(8)	R-Type	Hit Squad
6	(9)	Target Renegade	Hit Squad
7	(5)	Out Run	Kixx
8	(4)	Quattro Super Hits	Code Masters
9	(3)	Guardian Angel	Code Masters
10	(7)	Jaws	Alternative
11	(11)	Paperboy	Encore
12	(10)	Run The Gauntlet	Hit Squad
13	(NE)	California Games	Kixx
14	(15)	Arcade Fruit Machine	Zeppelin
15	(NE)	Wonderboy	Hit Squad
16	(NE)	750cc Grand Prix	Code Masters
17	(NE)	Back To The Future 2	Mirrorsoft
18	(17)	Operation Hormuz	Alternative
19	(12)	Rastan	Hit Squad
20	(NE)	Tracksuit Manager	Hitec Software

Last month's position in brackets



Dragon Breed

Mount up on trusty Bahamoot and rid the land of the King of Darkness' pestilence.

Sitting astride a large, evil-smelling, scaly dragon can be pretty uncomfortable over a prolonged period of time, so there's got to be a good enough reason to do it, don't you think? So what is it?

Well, young king Kayus has succeeded to the throne of the Agamen Empire at the ripe old age of fifteen. As always, the bad guys are just around the corner and, dissatisfied with the new king, they have conspired to break the seal of confinement around Zambaquous, the King of Darkness, in order to use his black power to seize the throne.

As evil slowly creeps back into the land, the ground begins to rot and the air is filled with a nasty residue and only you, young king Kayus, and your trusty dragon Bahamoot, can do anything about it.

Mount up then and be prepared for some sizzling air-to-air combat action and some stunning graphics in the struggle for power.

As you start the game, your dragon will be coloured green but, by shooting and collecting the special power-up icons, you can beef up Bahamoot's power as well as the bolts from your trusty crossbow.

Each coloured collectable corresponds to a certain power. For example, red will give you flames, blue will enable you to throw lightning bolts, silver will chuck out homing dragons when you fire and gold will add scales to your fighting power.

Pick up three icons of the same colour in a row and your firepower with the respective armoury is at its highest. Pick up a different coloured icon and your firepower will change.

To help you out just a touch more against your formidable and weirdly shaped opponents, if you reach the highest scale of gold, you can coil your dragon's tail about yourself for extra protection. But only for a limited amount of time. Be warned.

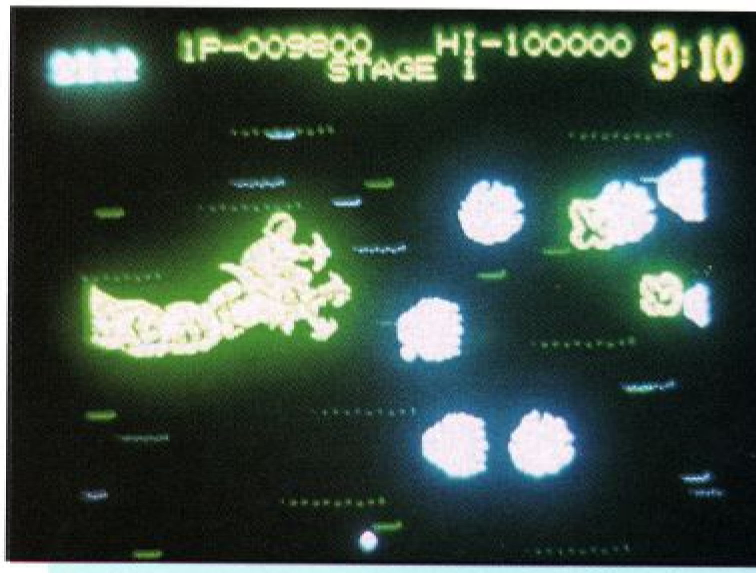
As you proceed, you will need to dismount from time to time, to collect more icons and getting back on will take some practise. So, don't get off unless you have to.

On top of all that, there is also a time limit, within which you must finish each of the six gruelling levels on the way to Zambaquous' lair. Take heed, you will need to pay very careful attention to this clock if you want to survive. Just beating through the opposition is hard enough, so don't hang around too long on the platforms while Bahamoot hangs idle in the air.

Dragon Breed is an excellent arcade adventure with more than enough going on to keep you interested and, with the added bonus of the dragon's tail as an extra weapon, skillful play should bring good results.

That tail does take some getting used to though and, just when you want it to coil around your head to ward off the latest, vicious assault, you're just as likely to see it waving off behind you in the distance. Ho hum, practise makes perfect, or so they say.

Chris Knight



ROUND-UP

NAME	Dragon Breed		
FROM	Activision	PRICE	Disc £14.99 Cassette £9.99
86%	85%	88%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Strider 2

The warrior returns for another mega-bout of blasting and bashing.



If you remember Strider, the original, you'll remember what blasting good fun it was, as the Red Army took a beating at the hands of the superwarrior.

This time around, taking a snipe at the Red Army might be a little underhand considering the current state of world affairs, but that doesn't mean to say that good old Strider has been made redundant. Oh no, there's plenty more for a good-natured superhero to do in the big bad galaxy.

Take the planet Magenta for instance, a few years in the future. There are a few damsels in distress up there, being held by some very dubious-looking characters. Looks like a job for Strider.

At the start of the game, you are dropped onto the surface of the planet and straight off, there are some pretty tough adversaries to overcome. Keep your eyes open for the vicious-looking birds and be sure to drop the robot guards before they drop you.

Taking in some stunning graphics and superbly smooth scrolling, level two sees you plundering the tower defences. Spit in your palms and get ready for some strenuous climbing up the chains and ropes of the different platforms.





As you race to avoid the guards, beware of the power-points spewing out massive doses of electricity, otherwise you might find your clothing a little crispy and black looking.

As you progress through each level, pick up as many of the energy icons as you can as, at the end, you need to be transformed into a robot to take on the end of level baddie. If you don't pick up enough icons, you won't be able to face the music. Bad show!

If you make it through the outer defences, it's off into the underground caverns on your way to the huge power generating stations. There's more platform action to be had here, with a host of assailants trying to stop your progress toward the spacecraft where the damsel is being held captive.

Strider 2 is every bit as good as its predecessor. Once you get into the gameplay, you'll find it wholly addictive, with the fast and frantic action leading you all the way to success or disaster. Whichever it is, it depends on you.

The character movements are easy to get used to, though you may need a little practice getting from one rope to another during the platform rounds. Apart from that, Strider 2 is extremely enjoyable and, if you like your shooties fast and furious, look no further. Well done US Gold on another excellent conversion.

Dave Peach

ROUND-UP			
NAME	Strider 2		
FROM	US Gold	PRICE	Disc £14.99 Cassette £9.99
88%	86%	92%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Pick 'n' Pile

If you think it's just a pile of b*!!s, you'd better think again!

The object of the game? Well, you just pile up steel balls on the same colour and make them disappear. There are three different colours of balls and they're all worth 50 points each.

Sound simple? Yes, but as with most games with such a simple scenario, Pick 'n' Pile is totally addictive from the word GO and, if you can put this one down after just five minutes, you're a stronger person than the ACU boys and girls!

Press play and the first level to materialise is relatively straightforward. There can't be more than about twenty five balls on the screen, so place them quickly and you should have no trouble at all.

As the balls fall from the top of the screen, you can start placing immediately by positioning the cursor over the ball you wish to move and pressing fire. Then move the cursor to the desired position and press fire again to make the change and cause the explosion.

At the end of this level, you may be a little perplexed to find one or two odd balls that won't go away. If you do, just press P, or the right hand cursor to get some more balls to appear on the screen to help you match up the spares.

Simplicity itself, what? OK, from here on in, the going gets tougher. "But I've never seen that many balls before!", I hear you cry. That's right, and you've got to get rid of them all in double time or it's all over.

Use the walls at either side to build up columns to gain extra points and, if you can slip in a couple of bonus balls, your score will shoot up. For each column totalling more than 1,000 points, you get a diamond, its brilliance and value depending on how many points you totalled.

Collect the diamonds by exploding them again and, when you've got twenty, get set for a mega-bonus in time and points.

Use the egg-timer to gain extra time and make sure you put the bombs to good use to get rid of the balls.

Things aren't all stacked in your favour, however. As the balls change hue and shape on the various levels, keep your eyes peeled for the little devils. All they want to do is get to ground level and eat up your limited time. Stop them by using bombs, by swapping them around but, whatever you do, stop them!

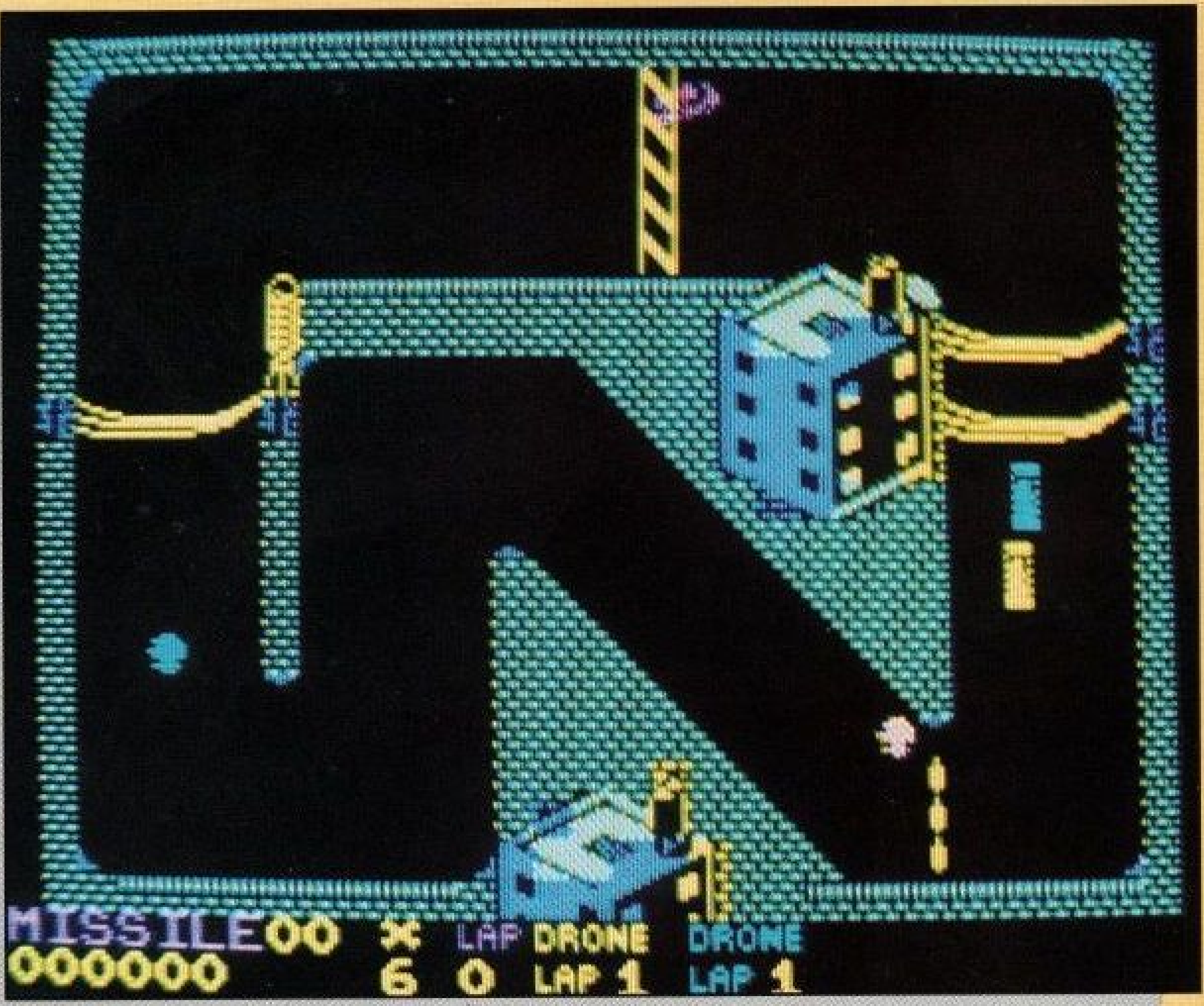
With a neat soundtrack rounding off some excellent and colourful graphics, Pick 'n' Pile is an excellently produced package that'll have you jumping with frustration as you try to beat your last score. It'll take you a couple of tries to sort out the earlier rounds but, once mastered, you'll be busy for a pretty long time.

Brad Fisher



ROUND-UP

NAME	Pick 'n' Pile		
FROM	Ubisoft	PRICE	Disc £14.99 Cassette £9.99
88%	84%	86%	CURRY
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Badlands

Racing has never been this ruthless!

The nuclear holocaust is over and it seems that what was left of civilisation went with it. What are we left with? A ruthless, sadistic bunch who think Formula 1 racing is about as primitive as the Ark.

The answer, of course, is to introduce a racing game with a difference and, with Badlands, you've got it – a racing game with a killing touch.

The idea of Badlands, as faithfully converted from the coin-op, is basically to race hell-for leather around eight very different tracks, against computer drone cars or a friend, making sure that you reach the chequered flag first every time.

That all sounds simple enough and, when you take on the opposition on the City track, life is easy enough. But, just you wait til you progress.

Just like a real coin-op, you need credits to play and, one of the nicer touches is the option for a friend to buy in at any stage between tracks. However, fail to finish first in any stage and you lose a credit.

On each track, be it the slippery-slidy oil refinery or the burning hot desert or volcano, you need to win to pick up the golden spanner, enabling you to buy extras for your souped up motor.

Choose wisely in the spares shop, as you need to know when to buy special tyres or a turbo boost to suit each round.

Of course, if you don't feel like being so refined about it all, make good use of the gun and missile launchers on your racer. There's nothing more satisfying than watching an opponent go up in flames in front of you and it also buys you a bit of time if you've been unfortunate enough to run into one of the many deadly obstacles on the course.

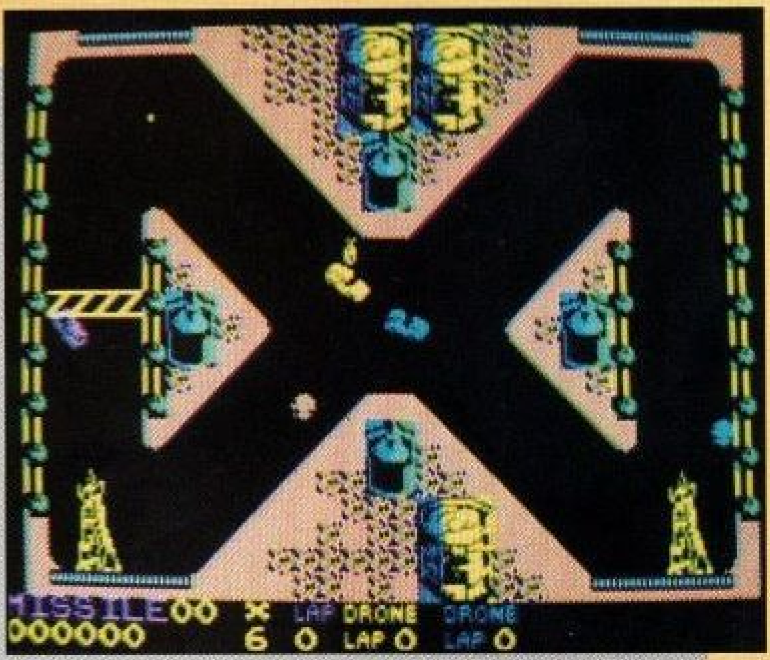
Each time you win, your firepower can be enhanced and, as the difficulty level increases and the opposition gets more hostile, you're going to need everything you can lay your hands on to succeed.

So much for the gripping scenario. The gameplay itself is fairly smooth and the movement of each racer is well controlled, the only problem being that they are a trifle small on the screen and a touch on the basic side.

Badlands is certainly more challenging as a two player game, as the drone cars tend to be a little inept on the earlier stages, so don't expect to be torn from your seat from the outset.

That said, there is more than enough variety in the race tracks to make Badlands well worth your credits.

Brad Fisher



ROUND-UP

NAME	Badlands		
FROM	Domark	PRICE	Disc £14.99 Cassette £9.99
78%	79%	82%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

The Amazing Spiderman

Get set for some particularly sticky moments as Peter Parker takes on the mighty Mysterio.

In this modern age of nuclear fission and fusion, core meltdowns and genetic mutation caused by radiation, it is surprising that there is still only one Spider-man out on the streets, defending the cause of right and justice against evil.

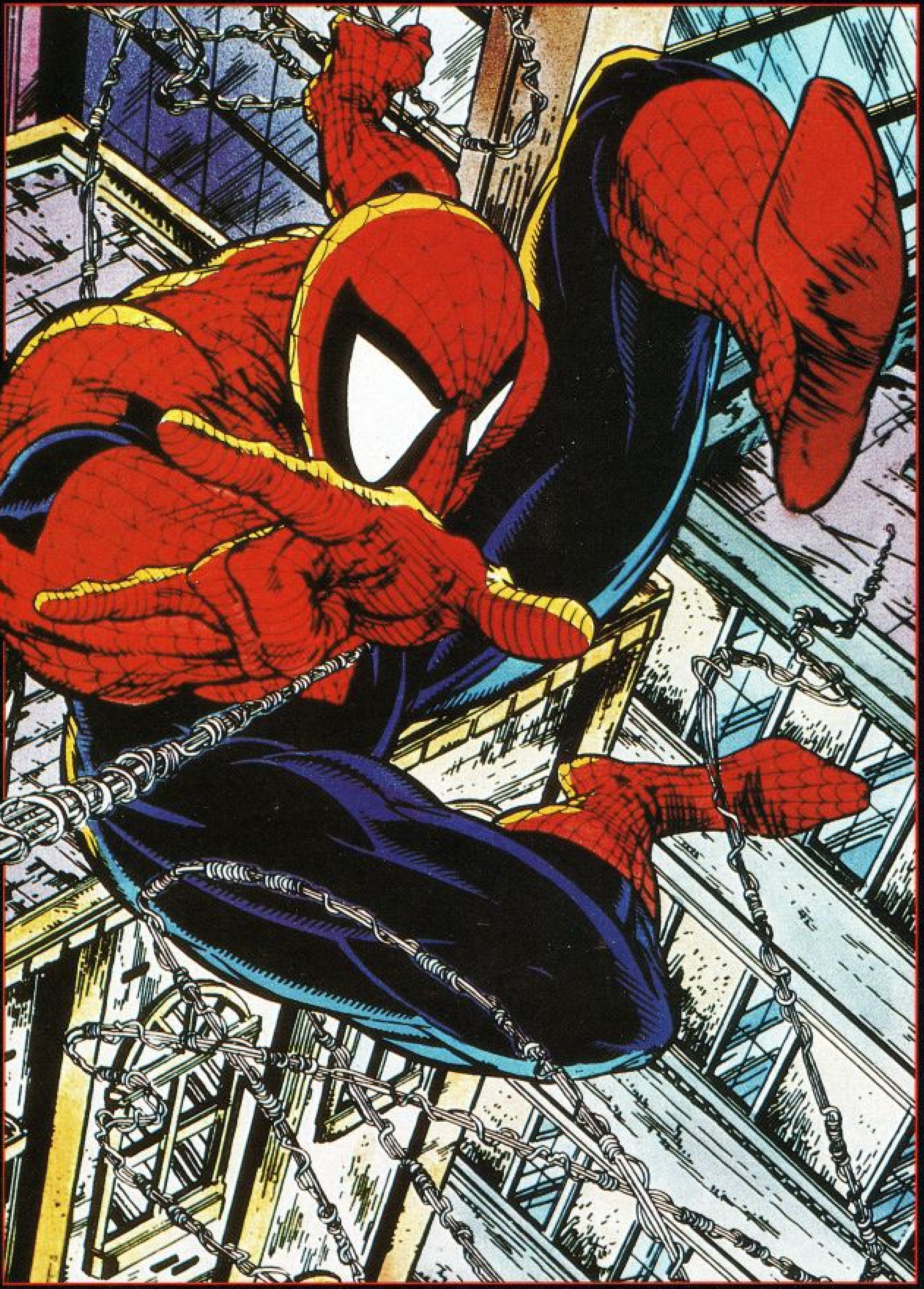
Be that as it may, there is only one and, although he's already been around for some time, there's still plenty of life left in him yet. Take a quick run through this little gem from Empire and you'll see just how true that is.

Peter Parker a.k.a. Spidey comes back from his nightly prowl around the city to find that arch-enemy Mysterio has paid a very unwelcome visit to his flat.

Not only has he trashed the place, but he's also taken Mary Jane, the loving wife of humble Peter Parker. Luckily enough, Mysterio has no idea that Peter and Spidey are one and the same personage, so that, Mysterio's ultimatum to bring Spidey out to the old Rockwell Film studios hits a very sore spot indeed.

What results from this vicious ultimatum, is a classic all-action blast of epic proportions, as Spidey battles it out through a whole host of different sets in the studios and, if you manage to survive the first encounter, be prepared to be dazzled by the ingenuity of the gameplay.

Moving through the studios, each category of film set is explored in infinite detail. In the horror section, you'll need to keep every ounce of your spider wits about you in the ancient tombs, as the ever advancing mechanical mummies at-







tempt to do you in at every possible occasion.

Approaching the ghostly looking castles, make sure that you've stocked up well with web formula, otherwise your fun could well be cut short by the sharks in the moat. They don't care what they eat and a bit of spider flesh is just as good as human.

If you can make it through the adventure section, you're doing very well indeed.

Getting used to the outer space stage is harder than you might think. Just as you get used to jumping and tumbling in this weightless environment, some spoilsport goes and changes the gravity level, bringing you back down to Earth with a resounding bump.

Throughout each level, Mysterio's presence is very clearly felt and, you'll need to be fast to survive. Being in full control of your web formula count does help, but the eight-way firing mode does even more to level the odds against your horrifying adversaries.

Finish off one lethal opponent and it's straight on to the next. Ever fancy a fling with Godzilla? You've got it and, just to make matters worse, you have to keep your balance along the rooftops of Manhattan skyscrapers while he's out to get you.

From the sublime to the ridiculous, use your spider senses to locate the evil lurking behind every dark corner in the sewers. Bump into certain sections and you could find yourself fading fast as hideous poison begins to take hold. At the same time, the rats are out there in droves to hinder your progress.

Too much for you? Don't worry it's all in a good cause and, there's plenty left yet! Coming out into the Western scenario, your task is to explore the old gold mines for clues to Mary Jane's whereabouts.

What's that? You hear something fizzing somewhere? Don't fret, it's only a load of lethal high explosives.



Spidey can handle that I'm sure. But can you?

The action in this game is fast and furious. With 256 sprites of animation for Spidey , the graphics and scrolling are superb, combining with excellent and atmospheric sound effects and music to make an all-round, guaranteed number one hit.

Stun the robots as they come at you, hit switches, test out which walls are real and which aren't and don't hang around too long on the moving platforms. One small lapse in concentration could be fatal.

Getting used to controlling Spidey may take a little time, especially the mastering of web firing and swinging between strands. However, once you've got it off to a tee, it really gives you an edge you can ill-afford to do without.

At the end of it all and just when you thought you'd had enough, watch out, here comes Mysterio.

The Amazing Spiderman is a totally addictive experience for action, shoot-em-up and adventure lovers alike. There's an awful lot packed into this little offering and you'd certainly be wise to go out and get it as soon as possible.

After all, wouldn't you want to do something about it if some made old baddie came in, trashed your pad and took your missus? Too right. Take it away Spidey.

John Taylor



ROUND-UP			
NAME	The Amazing Spiderman		
FROM	Empire	PRICE	Disc £14.99 Cassette £9.99
89%	88%	94%	JACKPOT
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Platinum

Five barnstorming Capcom conversions on one disk? You'd better believe it!

In the high-action, non-stop playability stakes, you'll be hard put to beat a compilation of this quality. All established names and classics in their own right, here they are for your delectation one more time, and why not?

First off, there's Black Tiger, which has you fighting against the oppressive rule of the three evil dragons. As you take on the likes of Audrey II and III, the well-known man-eating plants, you'll need to keep a good account of your Zenny coins.

Collect as many as you can from dead opponents and chests to buy valuable armoury and potions from the poor guys you release from their frozen prisons.

With Block Heads, Goblins, Mummies and Spinning Skulls standing in your way,





Black Tiger is a challenge well worth taking up, even if the colours tend to be a tad plain.

Moving on to Forgotten Worlds, it's Emporor Bios, the God of Destruction, who's causing chaos all around. Very dangerous.

Take on his minions in the Dust World that forms the aftermath of the coming of his eight evil sons, before moving on to their heavily armoured fortress below his kingdom in the sky.

Using excellent graphics and smooth eight-way scrolling, watch as your hero flies across the screen. Just be careful when you fire, as you could find yourself spinning in circles and rupturing the dangerous gas pipes.

In the bonus LED Storm blast, put your pedal to the metal in your souped up mean machine and take on the computer in a non-stop race against death between fictional cities.

Use the jump option to avoid painful collisions, pick up as much energy as you can by running over the jerry cans and make sure you avoid the little froggies who want to slow you up.

To be fair, the gameplay is a little basic, but seeing as it's a bonus game for us CPC freaks, who's complaining?

The fourth offering is the excellent spy blast, Strider, which has you infiltrating the Red Army to bring out secrets vital to the defence of the West.

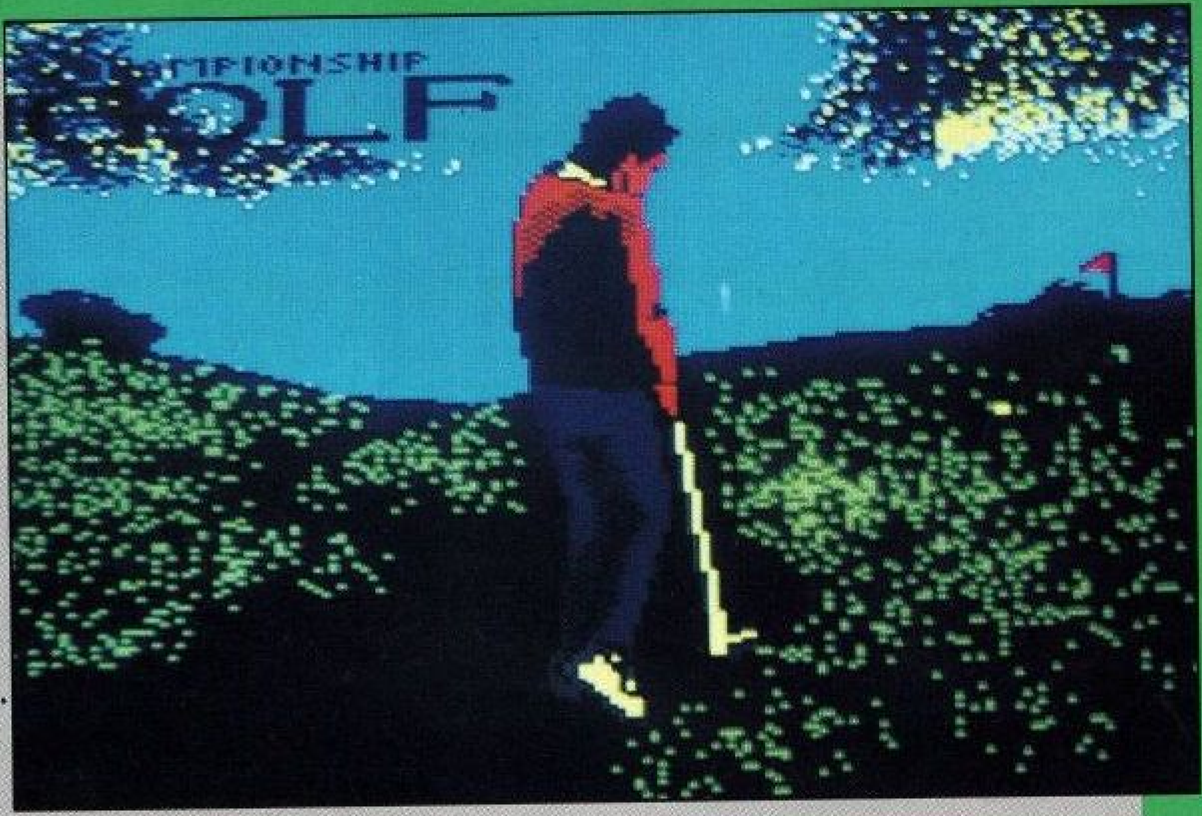
The scenario may be a tad dated by now, but the gameplay and graphics are superb, with some excellent animation taking you through Red Square and Siberia into the deep, dark dangers of the lowlands. Not to be missed.

Last, but by no means least, is a game that has become a firm favourite with a great many people: Ghouls 'n' Ghosts. You should know the scenario by now but, for the few who don't, all you need to do is go out and rescue Princess Hus. Sound simple? It ain't!

I would recommend any compilation that featured this classic beat-em-up, but considering the quality of the other offerings in this collection, I for one would be very surprised if Platinum didn't outsell its stocks very, very quickly. Make sure you get in quick to get hold of yours.

Chris Knight

ROUND-UP			
NAME	Platinum		
FROM	US Gold	PRICE	Disc £19.99 Cassette £15.99
88%	86%	93%	GOLD
GRAFFIX	SONIX	PLAYABILITY	VERDICT



Championship Golf

There's no point in being par for the course if you want to win the big money.

It's the British Open. You're standing up there on the green at the Eighteenth, with the famous clubhouse in front of you and Nick Faldo breathing over your shoulder, his own birdie already safely down the hole.

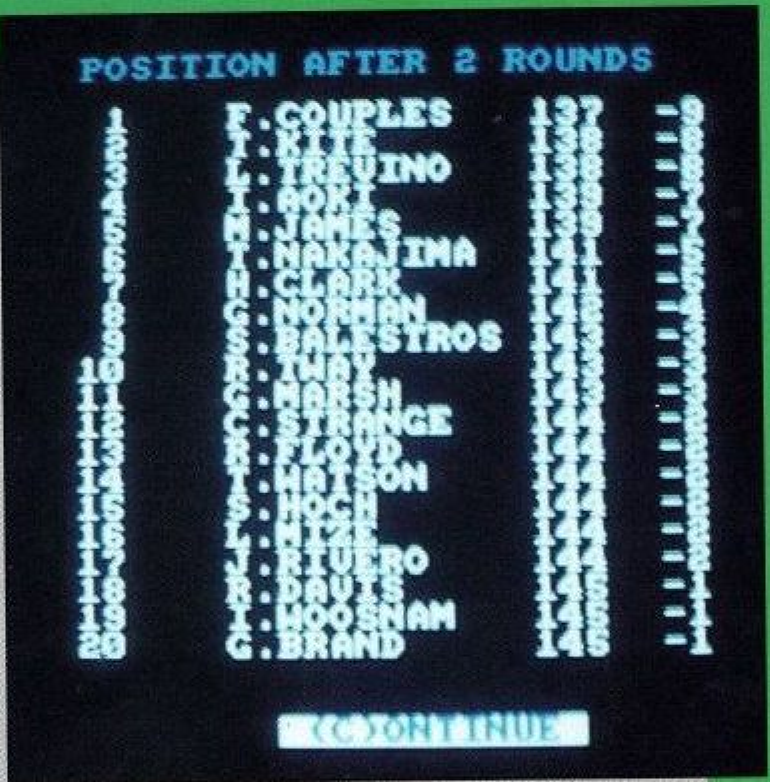
The Championship rests on this last shot. Put it down and you'll be a rich man. Miss it and you'll still be wealthy, but who wants to be a runner-up?

Fighting your way to the top of the professional golf ladder is no easy task, but with this smart offering from D & H Games, you can get there without having to slog around the course on a wet and windy Sunday morning.

Linking up with forty professionals, Championship Golf gives you the chance to train, take part in practice rounds and go for the top prizes at real courses, including the British Open.

On top of that, you also get a host of other options to choose from. Do you need to take out a loan to see you over that rough patch? Or is there an amiable sponsor out there who's got enough faith in your swinging arm to cough up the necessaries?

As you take part in the various tournaments, you'll find your handicap improving and you may even need to keep an eye on the world rankings to see if you're coming up to scratch.



If you do make it into the big league, then get set to do the world tour alongside the likes of Faldo, Rivero, Woosnam; you name them, they're all there and, if you can make an impact on the prize money league, you're doing well indeed. Will you do well enough to pay your debts? That's up to you and your clubs.

However, if you fancy your chances in a particular event, why not have a little flutter on yourself to get a bit of money in through the back door. Immoral? Never!

So, pick your favourite player, preferably one who's on form, and pit your wits against the best of the rest in the battle for the big stakes.

If you're into golf in a big way, or you're a freak for strategy games, Championship Golf should be right up your street. There's enough choice from the options menu to keep your interest going and, when the big event's trail draws to a close, you'll be on the edge of your seat to see whether you're going to be in there at the last as overall champion.

This is definitely not for shootie freaks, or for those who want colourful screens and non-stop action, but if you like your gameplay on the sedate side, why not give it a whirl.

John Taylor

ROUND-UP			
NAME	Championship Golf		
FROM	D & H Games	PRICE	Cassette £9.99
68%	N/A	75%	
GRAFFIX	SONIX	PLAYABILITY	VERDICT

Budget Basement

More soccer than you can handle and some super shooties to deal with your spare pennies.

THE FOOTBALLER

The World Cup may be stone cold, but the footie games are still around in abundance and, if you're into dancing around a bun, then you might as well add to your collection and get The Footballer.

As soccer management offerings go, there's the usual host of menus and options but, to be fair, it's not really an awful lot better, or worse, than many of the other management games on the market.

There are four divisions for you to scout through and pick from. Work your way through to the top and keep your team there in order to make the most money. If you fail, you know it's always better to leave than get the push, so be sure to be on your toes at all times.

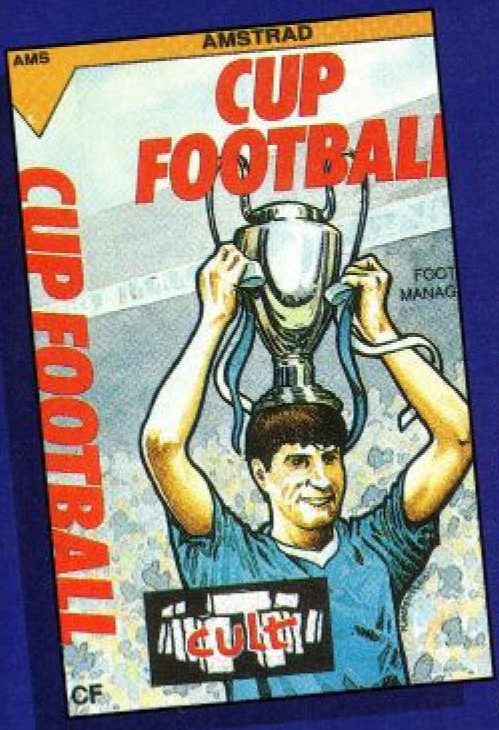
CUP FOOTBALL

Aaaaargh! Not another one! Yes indeed, and this one's not at all bad in fact. Ok, so it's footie management again, but this one's got the added excitement of European Cup Football.

With 40 teams up for the title, you must make sure that whichever team you choose comes through the qualifying rounds unscathed. If you get hit with some early defeats, your reputation will certainly precede you, but it won't exactly be the reputation you desire.

Check your own personal rating to see how you're doing, field the best eleven you've got and give it your best shot.

Don't forget, there are some lucrative TV deals around nowadays so, if you make it through the early rounds and manage to get a tasty second round draw, you could find your earnings doubling overnight. That's the idea anyway, unfortunately though, it doesn't happen too often and you'll need to fight every inch of the way to get through.



SUPERKID

New York, 2089 AD, warring street gangs have turned the streets into no-go areas and the Mayor is desperate for a super-hero to clean up the city. Enter you in the shape of Tom Essex, a young lad who accidentally drinks a secret formula, mistaking it for lemonade, and becomes Superkid.

The first part of this wicked beat-em-up has you rescuing young girls from roof tops and seeing senior citizens home safely in three different zones. Using your superpowers, you can deal some hefty blows to the bad guys, but keep an eye on the Crimewave Overload dial to preserve your energy.

Complete this first section and you get to go back out on the streets again, only this time it's after dark and much more nasty.



Superkid has plenty to offer in the action stakes and, as a one or two player game, there's sure to be enough competition to keep you going.

BARBARIAN II

The last time Barbarian went on the rampage, he rescued the beautiful Princess Mariana and gave Drax a bit of a savage beating as well. However, Drax isn't that easily destroyed and now he's back with a vengeance.

Choosing between either Barbarian or Mariana, you must fight through three different levels, the Wasteland, the Caverns and the Dungeons, facing up to six horrifying types of beast on each level, before you arrive at the inner sanctum of Drax.



If you manage to get that far, you're doing well and be sure to pick up the essential magic items along the way, or you'll come to a very sticky end.

Featuring some excellent graphics and superb gameplay, Barbarian II is tremendous value for money on the budget label and, if you haven't played it already, don't wait too long to try it.



SKATIN' USA

Tom Essex is back, but this time he's not Superkid anymore. That's right, he just woke up one morning and found his powers had disappeared. However, never one to run from a fight, he's decided to go out and continue the war against the street gangs with the aid of his trusty catapault and skateboard.

Over six rough, tough levels, go and deal out death to the bad guys, remembering to run over the food and fruits on the floor to gain extra strength.

Collect the dollar signs to light up the neon sign and make sure you finish each level with time to spare to gain extra points. If you don't, it's all over.

This sequel might not be as colourful as the original Superkid, but the action's still there and Tom's just as lethal as before, so it's well worth adding this one to the collection.

Chris Knight

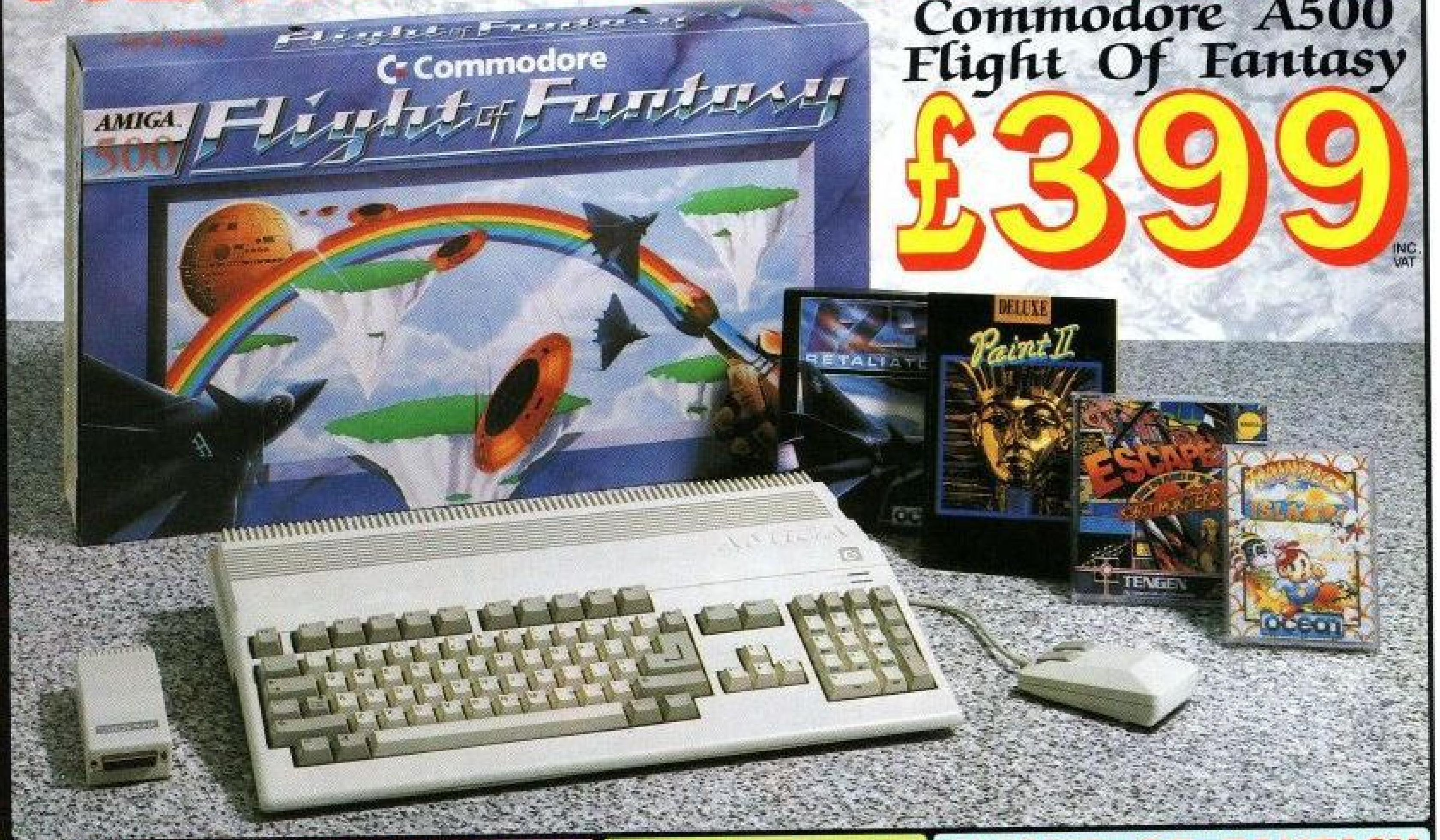
The Footballer	Cult	£2.99	60%
Cup Football	Cult	£2.99	68%
Superkid	Atlantis	£2.99	80%
Barbarian II	Kixx	£2.99	86%
Skatin' USA	Atlantis	£2.99	82%

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NEW! - AMIGA PACK

Commodore A500 Flight Of Fantasy

£399 INC. VAT



A500 BATMAN PACK



The Commodore A500 Batman Pack must surely rank as one of the most popular computer packs ever! The pack features the **Commodore Amiga 500 computer** with **mouse controller** and **TV modulator**, plus four top software titles. The software includes: '**Batman The Movie**' - Rid Gotham City of the cunning joker, in Ocean's top selling title based on the blockbuster Batman film; **New Zealand Story** - high quality conversion of the leading arcade game; **Interceptor** - Dogfight with two F-16's in this leading flight simulator; **Deluxe Paint II** - top quality Amiga graphics package which set the standard for others to follow. Return the coupon for further details.

PACK INCLUDES:

A500 Computer & Mouse	£399.99
A520 TV Modulator	£24.99
Batman The Movie	£24.95
New Zealand Story	£24.95
Interceptor	£24.95
Deluxe Paint II	£49.95
TOTAL RRP:	£549.78
Less Pack Saving:	£150.78
PACK PRICE:	**£399.00**

£399 INC VAT

AMIGA 2000



For the more serious or professional applications user, Commodore have a selection of systems based around the expandable Amiga 2000, at prices from £1295+VAT. The A2000 features a full 1Mb RAM (expandable to 9Mb), 9 system expansion slots, plus IBM compatibility with the use of PC-XT or PC-AT bridgeboards. Complete and return the coupon, putting a tick in the A2000 box, for details of A2000 computer systems.

£1295 +VAT= £1489.25

FLIGHT OF FANTASY

Flight of Fantasy is the very latest Amiga 500 pack from Commodore, featuring BRAND NEW software releases, to make this the most spectacular A500 pack ever! The pack features the Amiga 500 computer with mouse controller and TV modulator, as well as four top software titles. These include the following:

DELUXE PAINT II:

The high quality graphics program that set the standard for other Amiga art packages. Deluxe Paint II includes powerful, easy to use tools that bring out the artist in you. Create masterpieces, presentations, 3D perspectives or just doodle.

ESCAPE / ROBOT MONSTERS:

Here's something completely different - a science fiction story with comic book style graphics. Our heroes Jake and Duke are on the Planet X rescuing Humans who have been captured by the Robot Monsters and forced to create an evil Robot Army to DESTROY EARTH! Jake and Duke fight their way through hordes of evil Robots to help the Humans escape.

RAINBOW ISLANDS:

Slip on your magic shoes, practise throwing a rainbow and you're ready to go island hopping. From the Island of Doh to Monster Island, you will encounter Doh himself, stinging insects, lethal combat machines, mechanical assailants, the formidable beings of legend and folklore. Finally enter the world of darkness and its inhabitants.

F29 RETALIATOR:

The ultimate in flight simulation with a choice of two aircraft and four battle environments with dozens of different tactical missions. Aerial combat, strategic bombings, interactive ground based battles, seagoing carriers ... the list of features is endless. Real time cockpit displays, including 'true radar' enhance the realistic feel of this stunning simulation.

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Ground Major



control to Tom



Blast off into the world of electronics as Andrew Banner sneaks a look into the private life of Chris Price.

Is there no limit to the usefulness of the CPC? Andrew Banner is becoming increasingly convinced as he meets Chris Price.

Radios and computers are often a cocktail which is rarely ordered up at the bar. The two areas are worlds apart, but as time goes by the two worlds are gaining proximity. In just a few years time it is likely that the two worlds will collide and the radio scene will be affected without much impact on computing.

Computers are obviously used in conjunction with amateur radio and other systems, take Packet Radio for instance. But extensive use is not widespread although the interest is growing.

The Amstrad CPC is possibly one of the most unlikely computers to be involved in radio already. However, it's still a long way from radio control, instead the CPC is being used to aid the setup and repair of radio transceiver units. This, at first, may seem quite strange but as you read on you will soon discover that the CPC is still used as a serious tool in a most bizarre area.

My own discovery that the CPC is not just a games computer (which is what Amstrad apparently want it to be judging by the new range) came when I met Christopher Price who lives in Cambridgeshire. Born in Gloucestershire, Chris told me that he had always been interested in radio, even from an early age. His original ambition was to be an astronaut, but with the British intergalactic public still pushing to be the first Englishman (or woman) into space, the chances are very slim for Chris. At school he would offer a repair service for friends' radios for a modest charge and his interest grew – grew into a nice little earner.

I met Chris under the most bizarre circumstances when I called him up from a mobile radio phone to rescue me from a roadside verge which I had managed to sink my car into. At the time I was looking for his abode by attempting to follow the directions as given to me over the telephone. The editor (also called Chris) had not exactly gone into great detail over the real purpose of my trip, but once I got to Chris' home, things became clear – well, clearer; I'm not fully conversant with radio jargon.

Chris works for Direct Telecom Services, a company which specialises in Private Mobile Radio or PMR as it's known in the business. Private Mobile Radio is a service which companies offer to other companies. It exists to provide private radio communication to any company that needs it. Such organisations include exhibition halls and organisers, construction companies for use on building sites and security firms.

To aid the security and validity of transmissions, each installation has to be allocated a frequency on which to transmit. Unlike amateur radio, private mobile radio only has a few channels open to it. Actually it's only got three Ultra High Frequency (UHF) and ten Very High Frequency (VHF) channels. If, like me, you get confused with the difference between frequency and channel, it's relatively simple. The frequency is the regularity of the signal, the channel is the label for that regularity. However, it is not fair to call a frequency a channel. For example; Capital Radio's frequency is 95.8Mhz FM but the channel is Capital Radio.

Because there are so few channels available, security of transmission is

important. In order to obtain a high level, each transceiver is programmed to transmit and receive on only a limited number of frequencies. Also, each one will only accept transmissions which are accompanied by specific end-code tones. This is like having a telephone number – you only get to talk to the person who owns that line or in this case, the end-code. Now if your test equipment is down, it's a very long winded operation to program your radios with the correct tones.

This is where the CPC comes in. Usually, these tones are produced by a signal generator which is a most essential piece of kit if you want to work with PMR. Signal generator units are sometimes separate and sometimes combined in other equipment. Chris had a very expensive oscilloscope come signal generator come teasmade for the demonstration. This rather large, cumbersome unit costs in excess of the price of a pristine 1960's Mini Cooper (over £7000) and if it's the only one you've got, it's a long, slow journey down dung creak without said paddle should it fail. Here the Amstrad has one up on a typical radio test set – for just a few hundred pounds you can achieve the same type of results with the CPC as you could with an £8000 Marconi 2955. Obviously there are great advantages to owning the Marconi, but for the difference in price, there's little comparison.

It was such a situation when the test equipment failed that prompted Chris to begin to program his CPC to reproduce the signals which are required for the task. His software would then make life a lot easier should the radio test equipment fail again. At first he wrote just a simple program which emulated just one tone signalling system. However, there are a number of different systems in use and it soon became necessary to produce something which emulated some of the other systems currently in use.

One of the most common tone systems in use is CTCSS which stands for Continuous Tone Coded Squelch System. One of the largest manufacturers of radio equipment in the world, Motorola, uses this system but instead calls it PL. CTCSS or PL is a continuous tone which is transmitted along with the voice signal. It is not possible to hear these tones because the radio will filter them out. Apart from that, these tones are called sub-audio, many of which are at frequencies which are below the range of human hearing. There are actually 50 sub-audio tones ranging from tone one at 67.0Hz to 254.1Hz. These tones are constant, if it is not present or is dropped, then the receiver will cease and the frequency goes dead. Other systems are five-tone which is a serious of sounds which offer identity to radio units. There are about seven different protocols for five-tone systems. These initialise the receiver with the correct code before voice transmission begins.

So, without the authorisation tones there is no reception. Programming these tones into the radios is not the concern here, achieving these end codes is. As I said, these are usually produced by test equipment, but the tones can just as easily be reproduced on a simple CPC thus avoiding the spending of oodles of cash on a large and bulky oscilloscope.

Chris' answer is Testset, a program which emulates all the different end code features that are in use today and includes all of the 5-tone standards including CCIR, DZVEI, EEA and NATEL. This software will faithfully reproduce all of these protocols, and connecting them to an appropriate piece of kit is simply a matter of connecting it to the very useful headphone socket on the CPC. To get a better signal from the machine though, it's a good idea to open it up and take two wires directly off of the speaker and run these to another headphone or similar socket, this is because the signal to the speaker has a greater amplification and therefore a louder signal.

Chris' MC14410 IC emulator program will emulate the industry standard MC14410 chip. Why? Well, because it's a DTMF chip which creates the standard tones which are used by many radios and especially the new British Telecom System X telephone exchanges. British Telecom call the system Touch Tone. So using this software, not only can you service radios, you can also check PABX private exchange systems.

In fact, Chris has a whole host of programs for programming various hand portable radios including the Icom ICHS range under PMR, HAM and the UK and USA specifications.

So, if making noises excites you, and it's good for acid, then contact CpRs Design Technology which is Chris' own company. Similarly, also contact Chris if you can put his wide range of software to good use.



Going from X to Z

In which Gordon discovers ZMP (at last) and plays with fast automatic file transfers.



A while ago, when I did a run-down of what the CPC user could expect in the way of file transfer protocols, you may remember I waxed lyrical about Zmodem. Waxing lyrical was all very well, but, of course, it didn't do anything to let we Arnoldophiles get at it.

A wee while later, the three letters ZMP came hurtling my way, amidst total oblivious ignorance that, once again, our cousins down-under had stolen a march. The land of Oz isn't, it seems, just a place where the ubiquitous Neighbours live (with that gorgeous person Annie Jones – Jane to her friends). Oh, no, they take their comms seriously over there. And, indeed, if my info is right, it's from there that ZMP has found its way to these shores, complete with Zmodem file transfer protocol!

When I managed to get my mitts on it – and thanks to the kind souls that have now uploaded about four different versions to Maxwell House – I couldn't believe what I saw. Here it was, a CP/M Zmodem Program (hence its name, I assume) that ran on the CPC.

However, it does have one or two problems, but let's go through it a bit at a time.

The version I've pulled down is PD – no payment required, and has been installed for the CPC specifically. I renamed the .COM file to ZMP, and, calling it from my otherwise

unadorned CPC6128 was presented with a slightly vague and offputting opening screen. It didn't help that I'd managed to get some corruption in its setup files, and so, wanting to be sure it wasn't just me, I downloaded it again.

This time, the transfer went smoothly – it turned out that my disc had had a dodgy sector on it – and the opening screen popped up as it had been intended to. A quick <ESC><H> and the help screen opened up, from which I decided to configure ZMP for my modem as the first act. Sensible thing to do, really, cos I use a rather hoopy Racal Milgo Maxam V as well as a more sedate Amstrad SM2400 – so I set two discs up to avoid messing about.

Actually setting the thing up isn't difficult at all – it's actually a damn sight more intuitive than MEX, once you've sussed out the .DOC files – well worth printing out, and not too wordy, id sometimes a bit on the woolly side. However, the initial setup sorted out, the time came to get logged onto Maxwell House and see what was what.

ARGH!!! Oh no!! Lost characters! Ages ago, when first I started messing with MEX, I had major problems with characters that didn't quite make it to the screen. The first page or so would be OK, but as soon as any scrolling started, or discs were accessed, whole chunks of data would disappear into the ether. That problem got cured PDQ by bolting an interrupt driven overlay onto MEX, which coped admirably up to around 2400/4800, and made matters a lot better at 9600, though never totally satisfactorily.

Now, there are some of you out there sitting wondering what on earth I'm on about, aren't there. OK, slowly, then, it's very simple, really. Under the 'ordinary' comms port driver, things like scrolling the screen and accessing a disc drive take precedence over reading characters from what CP/M considers to be a peripheral. CP/M doesn't bother telling the serial interface to 'hang on a mo', it just diddles off and does what it wants to do, and then comes back to get another character or two.

Now, if there's no housekeeping to be done, there's no problem – it gets back quickly enough to get the very next character. If, on the other hand, the screen needs a quick scroll, or there's something to be done with the disc drive, the serial port carries on pumping bits and bytes into where it thinks CP/M is waiting for them. Only it isn't!

Now, as it happens, this kind of meandering on behalf of CP/M usually occurs at a line end, so there's a quick'n'nasty fix for it, if the service you're calling supports it. You ask the other end to send a string of 'NULLS' at the start of each line – five ought to do the trick.

When CP/M gets back from its impromptu journey, all it's missed were nulls – ie nothing, and the next lot of characters it gets are valid ones, the ones you need, in fact. Back in the bad old days before IBM compatibles became all the rage and Bulletin Boards ran on CP/M machines, this was a fairly common problem, so most BBS software allowed the user to set nulls to be used.

Unfortunately for Arnoldophiles, it isn't quite so common these days, but you can find a few systems that will let you do this ikkle trick. The only real cure is to reshuffle the interrupts, such that the serial port has priority – which is where the overlay comes in. It does the reshuffle for you, and makes using a comms proggy at 2400 bits per second a lot less likely to make you scream.

Which is where we came in, more or less. ZMP exhibited all the nasty character missing habits I'd quite forgotten about. What really is unfortunate is that, thus far, I can't find an interrupt driven overlay for it. I've contacted DeeGee – Dave Gorski, the SYSOP of ASPECTS BBS on 061-792 0260, and he hasn't come across one, but might just be tempted to write one, he says. Which is just as well, since, as I recall, it was he who wrote the original interrupt overlay for MEX.

This is NOT a breath holding exercise, though – he reckons there might be problems. Anyway, on with the plot!!

I've Started so I'll Finish

Once I'd got used to the fact that interaction with ZMP was unlikely to be as good as with my nobbled MEX, the next thing to get stuck into was a Zmodem file transfer. Now, one of the beauties about Zmodem is that it can automatically set your end into download mode once it's decided to start a send from the other end. What's more to the point, if, for some 'orrible reason not unlike BT's lines deciding to unceremoniously kick you off, or your modem giving up the ghost temporarily while you're in the middle of troughing an enormous file down, you end up with only part of a file on your disc, it can also 'resume' a transfer – ie start up from where it left off.

Think about that for a moment – let it sink in. With Xmodem, if you're thirty bytes from the end of a 100k file when the plug gets pulled, you've got 100k to pull down again, and the 100k-30bytes you've already got is wasted, like that bit of your phone bill.

With Zmodem's resume mode, you only need to pull down the 30 bytes you didn't get the first time, which Zmodem will tag onto the original file, and call it finished. Now, which would YOU rather have??!!

Back to the plot once more. I had no problems with auto-downloads, nor with resumed transfers, which tells me that ZMP's author know his onions. I've heard that it has problems with QBBS's Zmodem, but since most BBS's use DSZ to provide their Zmodem, this ought not to be a problem – anyway, I think it's the sysop's fault, not yours!

So, how do you go about using this wunnerful protocol if it's going to lose characters here there and everywhere?? Until the overlay appears (and no, I'm not going to write it), what I'd suggest is this. Use MEX, or whatever, until you need to download or upload a file. Set up your application such that it doesn't drop the line when you exit it (you can do this with MEX) and boot ZMP, which doesn't drop the line when it boots, and do the biz. Then exit ZMP and reboot your other comms proggie. Or make sure that the last thing you do is either down or upload, and set the BBS to autolog-off (you can do this with Maxwell House and many others).

Like I've said, ZMP is available for download from Maxwell House, so you've no excuse – and I shall be watching its download count!! Next all we need is an ANSI terminal emulation for the CPC and everything will be fine. And it just so happens that there is one already available for us.

Its author has released a sort of beta-test version for it, onto Aspects BBS, and he's looking for feedback. I'll be grabbing it long before you read this, so get online and grab it yourself. I'll give it a going through next month maybe, and we'll see what else is available in the PD comms scene too.

URGH!! Out of space again, and I didn't even get the room to tell you I'd borrowed the hard disk off me bruvver the Doc, and that it works fine with ZMP, and you can download massive files onto it, and it's wunnerfull and I want one! Tara till next month – Live Long and Prosper!

COMBAT ZONE

This month we delve into the future of arcade games – virtual reality – and visit world leaders in this exciting new field – Leicester based company W Industries. John Cook goes boldly…

You might have noticed, that computer types likeus – when in groups – love nothing more than to talk about news of the latest, newest, whizz-bang technology to be foisted upon the unsuspecting world by the computer companies. And it's been a bumper season for that, of late, with a whole lot of interesting stuff just coming out of the labs and now on the verge of hitting the consumer market.

CD-Rom – cor…600 Megabytes of data on one disc! Multi-media – coo…full screen, full motion video with CD quality sound on my computer! Virtual Reality – (VR to the guys in the know)! Errr, what is virtual reality?

Mmmmm, tricky question and difficult to work out from the glossy pics of shapely models posing in adapted diving masks and weird gloves that you might have noticed in the 'style' mags. According to who you ask, VR is the most wonderful thing to hit the human race, let alone computing, since the fig leaf or alternatively, the most terrible threat to "life as we know it", since the return of the Generation Game.

Most of all, however, VR was something that cost millions of pounds to put together, needed 15 networked Crays to run and wouldn't be available to the general public to well into the next century. And you had to be Californian to be involved with it. Which made it all the more astonishing when, at the recent Computer Graphics show in London, a UK company was exhibiting a real VR product, Virtuality, available from stock and with a price tag of around £20,000. And what's more, a version of this unit will be on test in the arcades early this year.



Shocked delegates queued for up to an hour to have a five minute session on the system – which in motoring terms, was a Ferrari being sold for the price of a Fiesta.

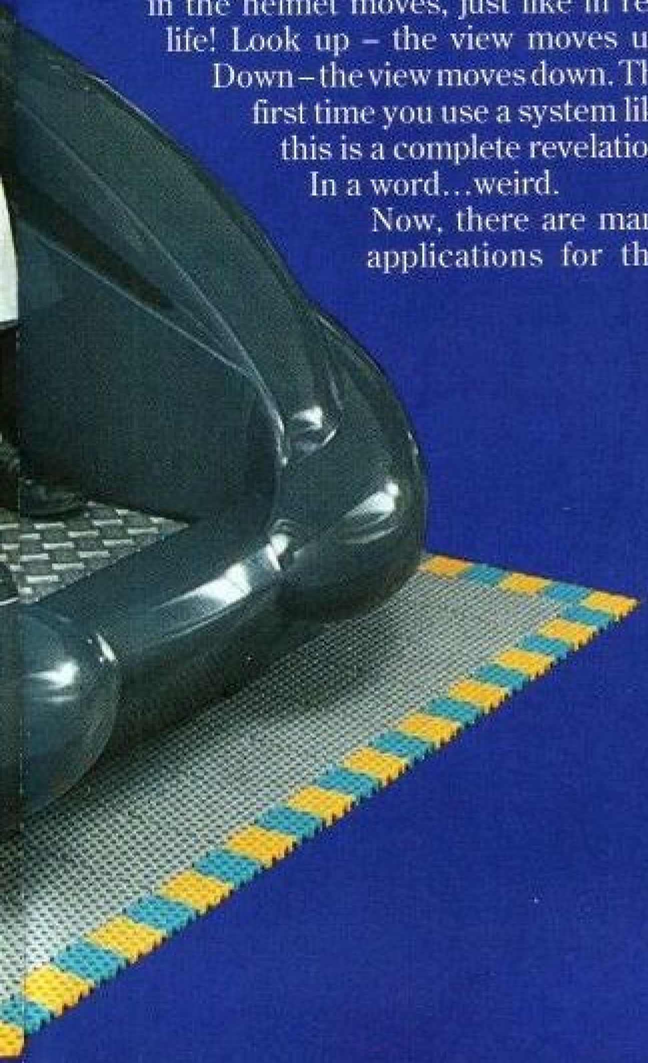
But it wasn't enough for Combat Zone – so we went to visit the company, W Industries, based in the heart of the Midlands, Leicester.

Charismatic go-getter Dr Jon Waldern is Managing Director of the company – and he's been involved in the field almost before it existed, having taken a PhD in Virtual Reality back in 1985. The results were shown on national TV and convinced him that VR was a viable commercial prospect.



But again, what is it?!!! Jon describes it as, "living within the world you create," – and that's not a bad stab. Virtual Reality is a system whereby a 3-D environment is modelled within the computer system, and viewed by the user from within the model itself, via a specialised helmet. No more looking at the monitor, you're inside the machine itself! This is delivered in glorious stereoscopic vision, via two colour LCD screen embedded in the helmet. It also delivers quadraphonic sound to the ears.

The clever thing is this – magnetic tracking devices in the helmet can detect the movement of your head, and adjust the stereoscopic view accordingly. So turn your head – and the view in the helmet moves, just like in real life! Look up – the view moves up. Down – the view moves down. The first time you use a system like this is a complete revelation. In a word…weird.



Now, there are many applications for this sort of kit. For a start, designers and architects – who all used 3-D computer aided design packages in their work – can construct their buildings on the computer same as ever, but now load them into the Virtuality system and walk around them! Imagine walking around a building that hasn't been built yet! Or sitting in a car that's not been constructed. Very useful – but luckily for us, if there's one thing that Jon Waldern wants to see Virtuality used for – it's GAMES!!!!!

In his own words he, "wants to build the Paramount Studios of Computer Entertainment!", around the Virtuality system – and you and me will be able to test out those first few steps towards that goal right now.

Using the SD version of Virtuality – a Sit-Down unit – public reaction will be on test from now, on selected sites around the country. The unit itself is quite simple.

You sit in this armchair affair, with a proportional, military spec joystick for either hand. You put on the helmet, that covers the whole of the head – and feels like wearing a full face motorcycle helmet. You can adjust the height of the TV screens in the helmet so the view is comfortable.

Now play the game! The very first is called VTOL and has you flying a Harrier style jet fighter in combat against enemy aircract…and other players! Up to 15 Virtuality units can be linked together…although on test there will be a maximum of eight. Winner stays on!

Flying over a textured landscape, you have to keep up a set kill rate, or lose the opportunity to re-fuel…and therefore crash! The effect is amazing. The 3-D polygon view is fast – and in stereo. This makes a real difference, making the whole view look extremely lifelike.

More importantly, say you are alterted to enemy whereabouts by the screaming of jets somewhere around the back of your head. All you have to do to check if you are being tailed is – turn around! The view moves with you so you can check back, left, right, up, down. It feels as 'though you really are within the game world.

Difficult 'though this is to describe, it's an amazing feeling – and will change the whole face of arcade games in the future.

With three other games in production – a bob sleigh ride, a "Return of the Jedi" style hover-bike race through the trees and a space game – W Industries are onto a winner.

Waldern says VR is at the Wright Brothers stage right now – but he doesn't think it'll take very long to get to Concorde. The advice of Combat Zone, if you see a Virtuality unit, try it – and playing games will never be the same again!

Applications Advice

Arnold's GP takes on the stuff that Ziggy couldn't handle!

What month is it?? I'm in a time warp here, I'm sure. Just in case, Merry Christmas, Happy New Year, Happy Easter, and Happy Birthday (well, you never know!) Right, no messing about, straight in with a letter from David Brown, somewhere in Cheshire who seems to be having trouble with his bleeding:

'As a fan from day one I have always enjoyed reading your articles. As a consequence a number of past problems have been solved before I have had time to put pen to paper. This has now changed. Any help you can give with my current dilemma will be much appreciated.

I use a CPC6128 and a DMP2000 printer. My word processing software comprises Protext on ROM modified by Qualitas. The printer has given trouble free service since October 1985. I use Amstrad ribbons purchased through the ACU Club and extend their life by using a Caspel ink spray. Currently I am working through a batch of new ribbons.

The problem is that, without warning, in the middle of multiple sheet printing the printer head will suddenly bleed ink onto the paper. This manifests itself most clearly along the left-hand edge of the paper and down the column occupied by the printing head when at rest.

Checks reveal that the printing head is always used in the raised position and that the lower portion of the ribbon always passes between the printing head and the small metal shield.

As I can see no way of removing the head, and am unsure if this is advisable in any event, I have contented myself with using an AF spray and sheets of kitchen roll passed under the head to remove ink traces.'

David, it seems to me, from the print out you sent, that the ribbon you used to print it was very wet indeed. The characters are slightly smudged, and there is definite splatter around even individual dots. Now, the little lever at the end of the printer's carriage needs to be adjusted such that the print head is the farthest away from the platten that it can be, which will lessen the impact a little. In fact, I rarely move it any closer unless I'm using a ribbon that's incredibly worn.

Another possible cause of the problem is the over-enthusiastic use of Ribbon Refresh, but as you're working with new ribbons, that ought not to be a problem. It does look very much as though you may have pins sticking a little, and not fully returning to the print head shell, which would exacerbate the phenomenon you've seen. The best bet is to whip the DMP into a repair shop, and let them have a look at the head – I suspect it's there that the problems lie.

As an afterthought, be VERY sparing with Caspell's spray – it's potent stuff, and when you think you've used enough, you've used far too much!!

Tie a yellow ribbon....

On a related subject Mrs. Wendy Keen writes from Kent:

'I have a DMP2000 printer which although not new, is new to me so I am still getting used to it. Could you tell me if the ribbon is supposed to move when in use, as it does with an ordinary typewriter? I have made sure that the new ribbon is correctly placed, in fact I don't think there's much that can go wrong with that part of it, but the ribbon appears to stay put while the printer is working and consequently is wearing out fast and unevenly! I'd be grateful for any advice you can give me as to what might be wrong, and should the worst come to the worst, and I have to get a new print head, what sort of price are we talking about?

I confess to being one of your 'more mature' computer fanatics, and still have much to learn, so I'd be grateful for any help I can get!'

Wendy, as far as needing all the help you can get goes, we're all in the same boat!! Yes, your ribbon ought to move – if you sit and watch the thing closely, you'll see that it shimmies along slowly as the print head moves across the paper. If it doesn't, then you've got a problem. The ribbon is, in fact, a closed loop running over an inked pad which is contained in the larger of the two plastic cases.

The print head has a little gripper at the top left (viewed from the front) which allows the ribbon to stay still while moving one way, and slides it along when moving the other. If the ribbon doesn't go through the gripper, then it will stay still as the head moves from right to left, which is when it ought to be moved. Check that the ribbon is correctly seated, and that it only moves when the carriage goes from left to right. If this isn't the case, the gripper isn't working, and it's a repair shop job, I'm afraid.



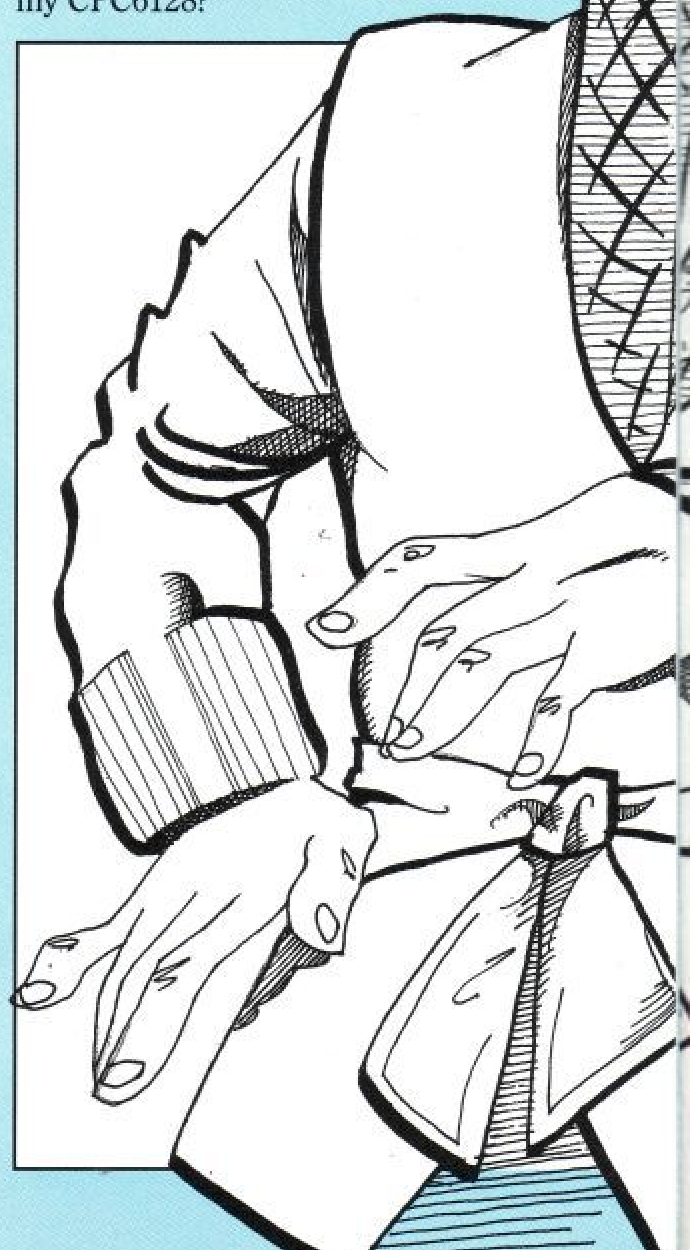
Multi-coloured Print Shop

Andrew Gallon is next with a printer related query. He's from Kent as well, strangely enough:

'I have recently purchased the Advanced Art Studio from Rainbird and now wish to print out in colour, so please could you advise me of a suitable printer of a reasonable price which will make good use of colour.

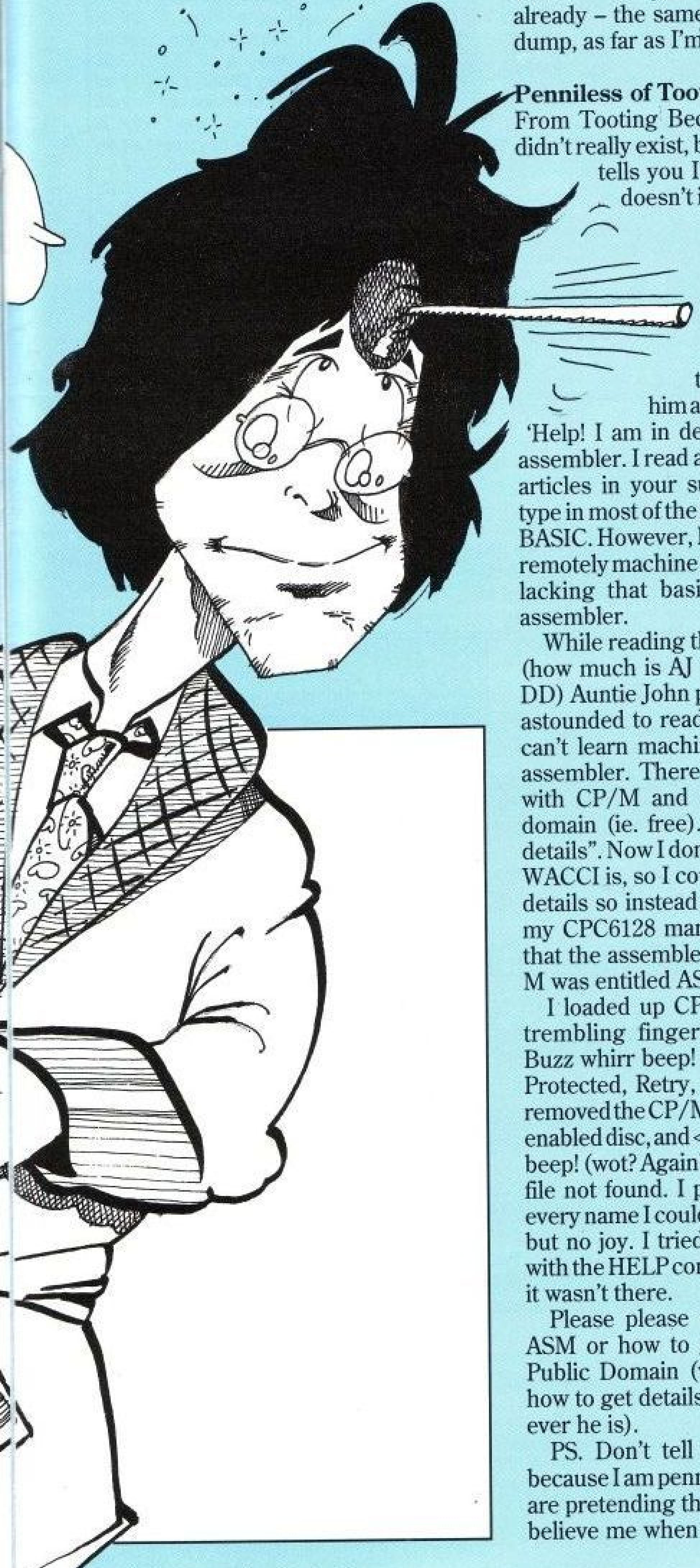
In the August edition of ACU MJC Supplies advertised Colourdump 2 for printing on a Star LC10C. Is this really necessary, and if so, what is it.

As I am an electronic cretin, do you also need an interface etc. for its use on my CPC6128?'



Andrew, you've answered your own query. The Star LC10C is probably the best supported colour printer for the CPC, and Colourdump 2 is probably one of the best utilities for driving it. Pricewise, I don't think you'll get anything cheaper than the LC10C, and it is capable of turning out reasonable quality colour dumps.

OK, I know it won't beat a £10,000 Postscript colour laser, but considering you could buy well over 50 LC10Cs for the same sort of dosh, you wouldn't expect it to! It needs no other interfaces than the one you've got in your CPC already – the same applies to Colourdump, as far as I'm aware.



Penniless of Tooting Bec

From Tooting Bec (which I thought didn't really exist, but obviously does – tells you I'm not a Londoner, doesn't it?) comes a missive from one Samuel Hopkins, a man whose parents obviously had impeccable taste, as they named him after my grandfather!

'Help! I am in desperate need of an assembler. I read all the machine code articles in your super magazine and type in most of the listings which are in BASIC. However, I cannot do anything remotely machine codish because I am lacking that basic requirement: an assembler.

While reading the 'oh so wonderful' (how much is AJ paying you, Sam? – DD) Auntie John pages one day, I was astounded to read these words: "You can't learn machine code without an assembler. There are some supplied with CP/M and some in the public domain (ie. free). Check WACCI for details". Now I don't know who or what WACCI is, so I couldn't check him for details so instead I searched through my CPC6128 manual and discovered that the assembler supplied with CP/M was entitled ASM.

I loaded up CP/M and typed with trembling fingers ASM<RETURN>. Buzz whirr beep! Error, Disc is Write Protected, Retry, Ignore or Cancel? I removed the CP/M disc inserted a write enabled disc, and <R>etried. Buzz whirr beep! (wot? Again?? DD) Error, Source file not found. I put source files with every name I could think of on the disc, but no joy. I tried to find out about it with the HELP command in CP/M, but it wasn't there.

Please please tell me how to use ASM or how to get things from the Public Domain (whatever that is) or how to get details from WACCI (whoever he is).

PS. Don't tell me to buy Maxam because I am penniless and my parents are pretending they are too, and don't believe me when I tell them that they won't go to heaven unless they get me an assembler.'

Hmmm. A slight case of misunderstanding here, I think, Samuel. The supplied assembler with CP/M Plus is MAC, which references .ASM files which are written in Z80 assembler language. ASM is a Public Domain assembler program – very different to an .ASM file.

In this case, a .ASM file is the raw assembly language program file, which MAC converts into machine language for you. I'd suggest that you re-read your HELP files, specifying MAC as the topic, and following the sub-topics from there. You'll also need to reference LINK and one or two others.

Now, as for Public Domain (PD) and WACCI. The former denotes a program for which the author requires no payment, ie. he has placed it in the Public Domain for free distribution. There are public domain libraries scattered throughout the world, some of which do deal in CP/M stuff, although these are becoming rarer with every passing day.

That said, if you look through the small ads in this very mag, you will very probably find one or two PD libraries advertising. A phone call will elicit a catalogue, and from there you may select the proggies you want (including some very capable assemblers, like ASM, for instance) and, upon a small payment, you'll be able to order some.

The alternative is to either get online to a BBS system like Maxwell House, or grab someone local to you who can, and pull the proggies you want from there. As I recall, we have an assembler or two on Max House at present, and I know there are others on other systems.

Finally, WACCI. WACCI isn't a he or a she, it's an it. WACCI is probably the largest CPC user group in the world, producing an excellent newsletter, and providing a superb PD library service. It's been running for as long as I can remember, and has a very good name. Again, there's a very good chance that you'll find a WACCI advert in here, or, if not, in back issues.

And that about wraps it up for another month! Please keep the letters coming in – it's all grist to the mill. When you write in, remember the more detail you give, the easier it is to find a solution to your problem. If it's a repeatable thing, the steps you take to make the problem occur will help. Full details of your setup are also valuable. Take care until next month, and may all your problems be little ones! Byeee!

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TOUCHDOWN

BY DUNCAN EVANS

Here it is, the finale to ACU's fantastic American footie game to coincide with the Super Bowl. Carry on from where you left off last month and, when you've done, you should be able to go out there and shine under the spotlights.

Alternatively, if you're a lazy so-and-so, send in your £6 to ACU Touchdown Tape, MSM Ltd., 116-120 Goswell Road, London EC1V 7QD and we'll see to it that you get a super-deluxe version of the game, without all the hard wear and tear on your pinkies.

Happy typing!



```
ards=10+INT((RND(1)*10)*(oplayer(5)/play
er(20))):seconds=30
5305 IF yards>0 AND INT(RND(1)*100+1)<=2
0+defmod(9)+oplayer(5)-player(20) THEN y
ards=yards+INT((RND(1)*30)*(oplayer(5)/p
layer(22))):seconds=40
5310 d2$=oplayer$(5):GOTO 5900
5400 seconds=15:IF a<=40+defmod(10)+((op
layer(1)+oplayer(4))/2)-player(19) THEN
yards=10+INT((RND(1)*10)*(oplayer(4)/pla
yer(19))):seconds=30
5405 IF yards>0 AND INT(RND(1)*100+1)<=2
0+defmod(10)+oplayer(4)-player(19) THEN
yards=yards+INT((RND(1)*30)*oplayer(4)/p
layer(21)):seconds=40
5410 d2$=oplayer$(4):GOTO 5900
5500 seconds=20:IF a<=25+((oplayer(1)+op
layer(5))/2)-player(22) THEN yards=20+IN
T((RND(1)*20)*(oplayer(5)/player(22))):s
econds=45
5505 IF yards>0 AND INT(RND(1)*100+1)<=1
5+oplayer(5)-player(22) THEN yards=posit
ion+1:seconds=60
5510 d2$=oplayer$(5):GOTO 5900
5600 seconds=20:IF a<=25+((oplayer(1)+op
layer(4))/2)-player(21) THEN yards=20+IN
T((RND(1)*20)*(oplayer(4)/player(21))):s
econds=45
5605 IF yards>0 AND INT(RND(1)*100+1)<=1
5+oplayer(4)-player(21) THEN yards=posit
ion+1:seconds=60
5610 d2$=oplayer$(4):GOTO 5900
5700 GOSUB 9300:LOCATE 11,17:PEN 2:PAPER
 1:PRINT oplayer$(23);" goes for":LOCATE
 11,18:PRINT"a ";position;"yrd field goa
l":LOCATE 15,19:PRINT"And...."
5710 IF a>oplayer(23)+25+position OR pos
ition>45 THEN LOCATE 13,20:GOSUB 9500:PR
INT"He missed !":ball=1:down=1:seconds=3
0:position=20:ytogo=10:RETURN
5720 LOCATE 13,20:PRINT"IT'S GOOD !":opo
ints=opoints+3:ball=1:position=20:ytogo=
10:down=1:seconds=30:RETURN
5800 punt=30+INT(RND(1)*20*oplayer(24)/5
0)
5805 GOSUB 9300
5810 PEN 2:PAPER 1:LOCATE 11,17:PRINT op
layer$(24);" punts for":LOCATE 14,18:PRI
NT punt;"yards":IF punt>position THEN LO
CATE 11,19:PRINT"TOUCHBACK to 20yrds":po
sition=20:GOTO 5830
5820 position=position-punt
5830 ball=1:down=1:ytogo=10:seconds=30:R
ETURN
5900 IF oplay>5 AND yards=0 THEN d3$="IN
COMPLETE":GOTO 5930
5910 IF yards=0 AND oplay<>1 THEN yards=
INT(RND(1)*3-1)
5920 IF oplay>1 THEN d3$="for "+STR$(yar
ds)+" yards"
5930 GOSUB 9300:LOCATE 11,17:PRINT oplay
er$(1);" takes snap":LOCATE 11,18:PRINT
d1$:LOCATE 11,19:PRINT d2$:FOR f=1 TO 10
00:NEXT:LOCATE 11,20:PRINT d3$
5935 down=down+1:position=position-yards
:IF position<0 OR position>100 GOTO 5950
5940 ytogo=ytogo-yards:IF ytogo<1 THEN L
OCATE 11,21:PRINT"  FIRST DOWN !":down=1
:ytogo=10:GOSUB 9500:RETURN
5945 RETURN
5950 IF position<0 GOTO 5970
5960 LOCATE 11,21:PRINT" !  SAFETY !":yp
oints=ypoints+2:ball=1:ytogo=10:position
=20:down=1:RETURN
5970 LOCATE 11,21:PRINT"* TOUCHDOWN * TO
UCH":LOCATE 11,22:PRINT"DOWN * TOUCHDOWN
 * T":LOCATE 11,23:PRINT"OUCHDOWN * TOUC
HDOWN"
5980 GOSUB 9500:GOSUB 9300:opoints=opoin
ts+6:LOCATE 11,18:IF RND(1)*100+1<oplaye
r(23)+35 THEN opoints=opoints+1:PRINT"P.
A.T is good":ELSE PRINT"P.A.T is missed"
5990 ball=1:down=1:ytogo=10:position=20:
RETURN
9000 DATA "Buffalo","Indianapolis","Miam
i","New England","N.Y. Jets","Cleveland"
,"Houston","Pittsburgh","Cincinnati","De
nver","Kansas City","L.A.Raiders","Seatt
le","San Diego"
9010 DATA "N.Y. Giants","Philadelphia","
Washington","Phoenix","Dallas","Minnesot
a","Green Bay","Detroit","Chicago","Tamp
a Bay","San Francisco","L.A. Rams","New
Orleans","Atlanta"
9015 REM sackyards  per play
9020 DATA -2,-4,-4,-4,-5,-6,-6,-6,-7,-7,
-8,-8,0,-10
9025 REM your offense ratings
9030 DATA 53,60,52,58,55,60,48,50,52,53,
47
9035 REM your defense ratings
9040 DATA 55,60,58,56,55,53,52,45,50,56,
58,64,55
9045 REM your players names
9050 DATA "Elway","Humphrey","Bratton","
Johnson","Nattiel","Kay","Kartz","Monte"
,"Juriga","Widell","Perry","Kragen","Car
reker","Holmes","Mecklenburg","Fletcher"
,"Brooks","Mumford","Henderson","Braxton
","Atwater","Smith","Treadwell","Horan"
9055 REM opposition player names
9060 DATA "Montana","Craig","Rathman","R
ice","Taylor","Jones","Radloff","Sepolu"
,"Collie","Barton","Wallace","Smerlas","
Holt","Fagan","Haley","DeLong","Millen",
"Walter","McKyer","Griffin","Lott","Broo
ks","Cofer","Helton"
9200 REM *** Draw the pitch & players **
*
9210 PEN 0:PAPER 3:FOR f=2 TO 14:FOR a=1
1 TO 30:LOCATE a,f:PRINT CHR$(240):NEXT
a:LOCATE 10,f:PRINT CHR$(241):LOCATE 31,
f:PRINT CHR$(241):NEXT f
9220 LOCATE 10,8:PRINT CHR$(242):LOCATE
31,8:PRINT CHR$(242)
9230 FOR f=3 TO 13:LOCATE (position\5+10
),f:PRINT CHR$(243);CHR$(244):NEXT f
9240 PEN 1:PAPER 0:LOCATE 10,15:PRINT SP
C(30):LOCATE 10,15:IF position=50 THEN P
RINT"Ball at halfway line"
9250 IF position<50 THEN PRINT "Ball on
";yteam$;position
9260 IF position>50 THEN PRINT "Ball on
";oteam$;100-position
9270 RETURN
9300 REM *** Clear the main text screen
***
9310 PAPER 1:PEN 2:FOR f=16 TO 23:LOCATE
 11,f:PRINT SPC(20):NEXT f:RETURN
9400 REM *** Update the screen stats ***
9410 PAPER 1:PEN 0:FOR f=19 TO 23 STEP 2
:LOCATE 1,f:PRINT SPC(9):LOCATE 32,f:PRI
NT SPC(9):NEXT f
9420 LOCATE 4,19:PRINT down:LOCATE 4,21:
PRINT ytogo;:LOCATE 4,23:PRINT timeouts:
LOCATE 35,19
9430 PRINT quarter:LOCATE 33,21:PRINT (c
lock-((4-quarter)*900))\60:LOCATE 36,21:
```



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Screen shots are only intended to be illustrative of the game play and not the screen graphics which vary considerably between different formats in quality and appearance and are subject to the computers specification.

```
PRINT clock MOD 60:LOCATE 36,21:PRINT":"

9440 LOCATE 34,23:IF ball=1 THEN PRINT"H
OME" ELSE PRINT "AWAY"
9445 PEN 1:PAPER 2:LOCATE 3,1:PRINT SPC(
33):LOCATE 3,1:PRINT yteam$;" ";ypoints;
"    ";oteam$;" ";opoints
9450 RETURN
9500 FOR f=1 TO 2000:NEXT:RETURN
9700 REM Defense modifiers used by both
teams
9710 FOR f=1 TO 10:defmod(f)=0:NEXT
9720 IF a=2 THEN FOR f=7 TO 10:defmod(f)
=-10:defmod(f-5)=10:NEXT:defmod(5)=0:def
mod(6)=10
9730 IF a=3 THEN defmod(2)=-20:defmod(3)
=-20:defmod(5)=-20:defmod(6)=-30
9740 IF a=4 THEN FOR f=1 TO 5:defmod(f)=
-35:defmod(f+5)=35:NEXT:defmod(6)=-10
9750 RETURN
```



Into the Labyrinth

Welcome back as the Dungeon Master returns to help you in your direst need. Remember, this is your column, so keep writing in to tell us what you want.

Welcome one and all, to what we hope will be a regular adventure column appearing monthly in ACU. That awfully nice man, Chris Knight, has kindly asked me to start the ball rolling this month, by writing about adventures and adventuring in general. Then hopefully, all you adventure lovers reading this and I know there are thousands of you, will write in with your hopes, ideas, comments, problems and solutions and really get this column established, once again.

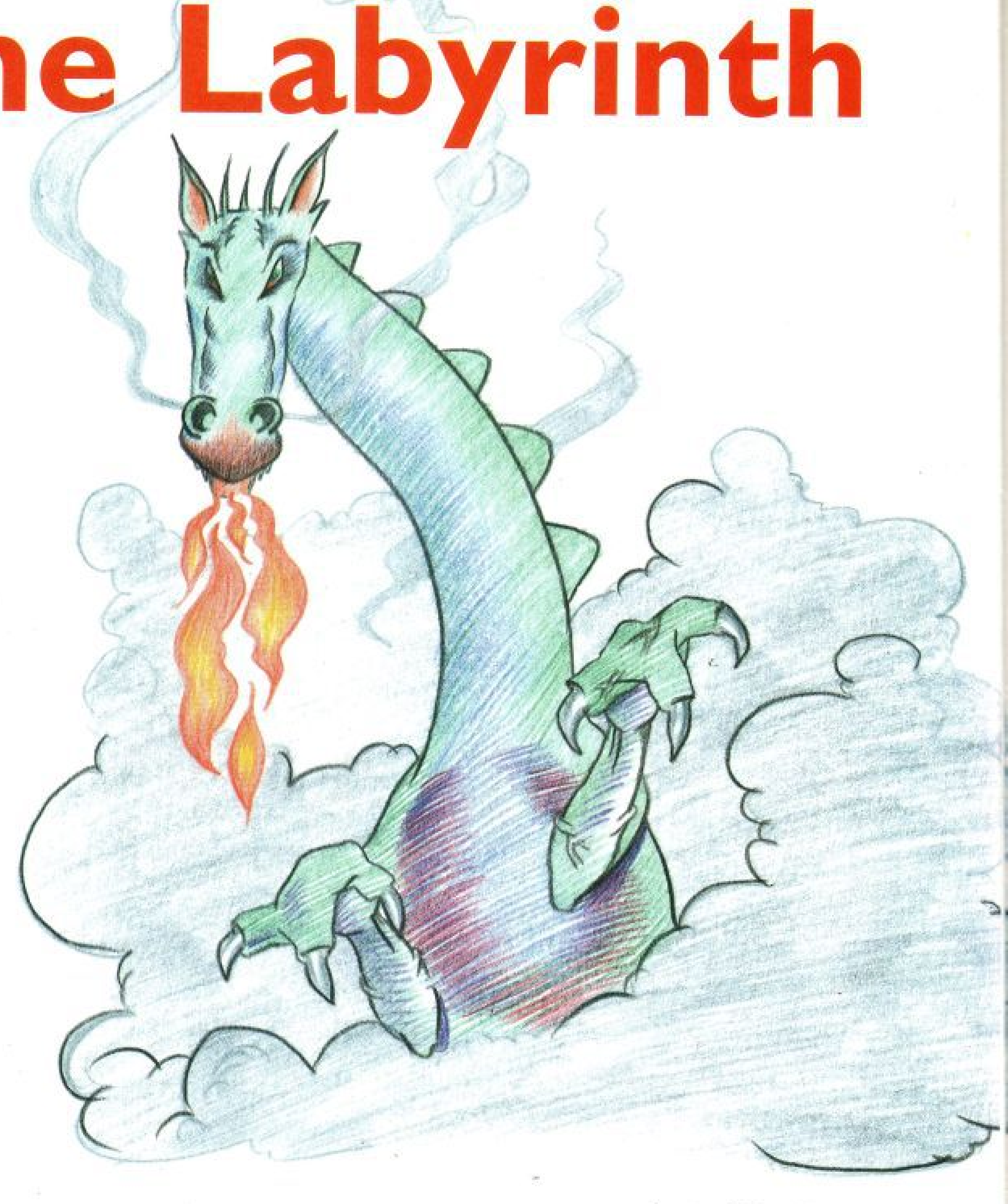
The most common question I get asked about adventures is, *What are they*? I have tried to answer this question many times and I always end up with a different answer. This is because there are so many different types and styles of games and they require a multitude of different skills. For the seasoned player, the choice of style is usually simple. Because they have played quite a few adventures and obviously liked them (else why would they be playing them?) they have already chosen the style of adventure they like the best. This then leads naturally to buying more of the same. But what of the complete novice? Where does he/she begin when faced with the bewildering selection available (or not, depending on where you do your software shopping)?

Well fear not, young novice, for I am here to help you. Let me spend this article taking a slow walk around all the different formats that adventures are available in and hopefully by the end, you'll have a clearer idea of what particular facet of this fascinating world, may appeal to you most.

So, to begin at the beginning. The Lord made the world in six days and just after, Crowther and Woods wrote "Colossal Caves" the original adventure. Well not quite true, it was actually only in the mid 1970's but it seems aeon's ago now. The strange fact is though, that although the game that started the whole adventure genre off, has been copied, borrowed, improved etc, countless of times over the years, it has never been bettered. It is still available to this day, from most Public Domain libraries. What is also strange, considering the tremendous influence it had on millions of people around the world and on successive generations, is that it was never written to be played by the public at large, ie, you and me. It was basically just a programming exercise on a University main-frame computer, by a couple of students in America. Thank heavens they never copyrighted the idea.

Word of mouth soon spread that this program existed and then everybody that had access to a computer and a phone line, was logging onto this mainframe and playing the game. Fortunately for the rest of us, certain enterprising young men recognised the potential of this game as a saleable product and so adventure software was born. Infocom, to name but one famous name, gave birth in this way. The ZORK trilogy, is their version of Colossal Caves. With Infocom though, you get an added bonus. Lashings of humour as well.

These early games are known as *Text-only*. This means, that your screen





consists of an entire page of text, rather like reading a book. Many traditionalists insist that this is the only *true* adventure. But as colour monitors arrived and graphic displays improved, so did the programmers desire to use and incorporate these new features. So graphics made their first appearance in adventures. They became known as *Graphical-text* or *text-graphic* adventures. Clear so far? Good.

However, this simple division didn't last for long. Soon to arrive on the scene were the 16-bit machines. The 8-bit programmers cast envious glances at the animated graphics and mouse/ icon driven games capability of these new machines and decided to do the same for the 8-bit CPC. This also gave rise to the *Role Playing Games* such as *Bards Tale* etc, becoming available, another new variant but still basically adventuring.

Does it end there? Far from it my friends. As if to go in full circle and back to the beginning when people were playing *Colossal Caves* by phone, British Telecom have for the last few years, had their own "computer phone-in adventure" called *Shades*. This game and several others like it, are known as MUDS. That is, Multi User Dungeons. The term multi-user, means literally that. Several people are on-line at the same time, all playing the same game and trying to beat each other, either to get to the hidden treasure first or to fight and kill one another.

Then there is *Play-by-mail*. Once again it is an adventure scenario, where there are several other players also taking part. Each week or month, you post off your "move" and then in return, you are sent an up-date of all that has happened in order that you can plan what your next move is going to be.

Probably the most recent addition to the adventure scene, are the outdoor "meets". These are growing in popularity and consist of organised (sometimes!) groups, rampaging around some desolate spot of countryside and acting out their own "real life" adventure. Usually acted out to a set of rules or guide-lines but often with a large amount of spontaneity thrown in. These are purely for the fit and young at heart, though.

So now it's your turn. Have a think about what you like most about your favourite type of adventure and drop us a line. Also we welcome any letters about problems with particular games you are stuck in, both old and new, plus any views and suggestions as to how you would like to see this column develop. Please do write in, as these pages have only returned as an experiment and the Editor (Sir), will only allow them to continue if enough readers express an interest.

Happy adventuring.



Zaps and Zings and Other Things

Maestro Ian Waugh gets stuck into, amongst other things, lottsa white noise.

Noise is...well, noise but there are different kinds of noise. The noise produced by the Amstrad's sound chip is pseudo-random noise which sounds very like white noise.

White Noise

All electronic circuits generate a certain amount of noise and this is generally undesirable. In synthesis this can be used in numerous ways; as a source of unpitched sounds or as an unpitched part of a pitched sound.

White noise is a combination of equal amounts of audio frequencies in the same way that white light is a combination of all colours. If we move up the scale, say one octave from middle C (C0) to the C above (C1), the actual frequency of the note doubles. The frequency doubles every octave we go up so there are more frequencies (not counting fractions) in the higher octaves than in the lower ones. White noise, therefore, tends to contain a lot of high frequencies which is responsible for its characteristic hissing sound.

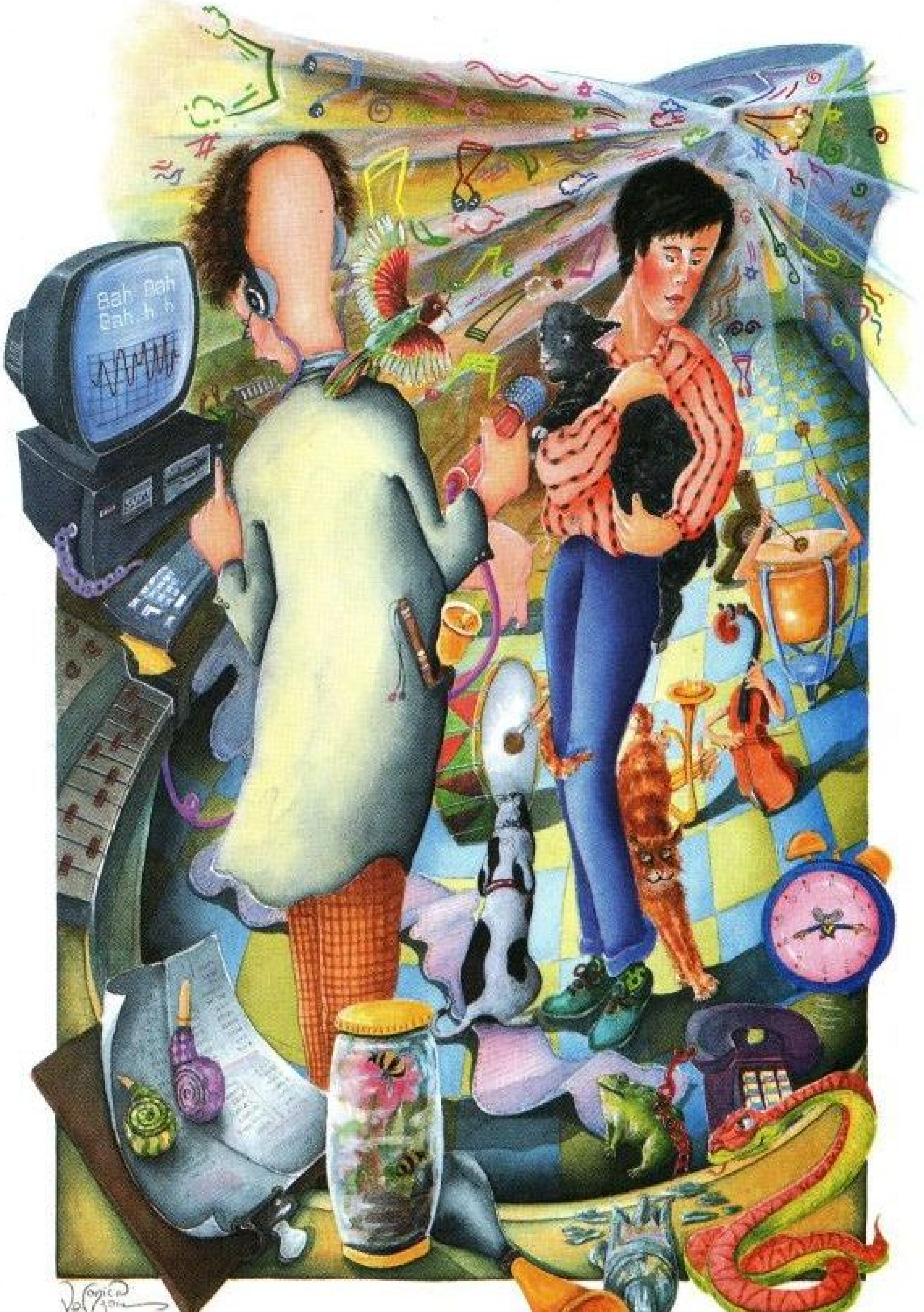
There are other forms of noise. The second most common form is known as pink noise which contains equal amounts of frequencies from all octaves and is similar to white noise with some of the higher frequencies filtered out. This is useful for producing surf and sea sounds. You can make 'red' noise by filtering out even more high frequencies and various other shades by filtering out a bit here and there but we'll leave that to the synthesists. The pitch of the noise produced by the sound chip varies with the value of the N parameter as we saw earlier in the series.

There are two ways noise can be used:

1) By itself with control over pitch. This can be used for bangs and explosions, etc. With variations, a number of these can produce rhythmic effects. 2) As 1) but in conjunction with some other sound.

Simple sound effects

This program contains five examples of sound effects. You can type in the whole program or one section at a time.




Bah Bah
Bah..h..h

Each section has been given its own envelopes. (Prog 1)

Commentary

The Machine Gun just alternates between two pitches of white noise. This principle can be used to produce a number of effects. REM out line 190 and alter the N parameter in line 160 to 8 and in 170 to 11. Add another delay:

175 FOR d=1 TO 90:NEXT

to produce the sound of a helicopter's blades. UnREM line 190 and add:

174 SOUND 1,0,5,7,0,0,18

to produce a car that doesn't want to start. Increase the D parameter in the SOUND commands to make it even more reluctant.

The Ricochet is produced by combining noise with a sound undergoing a pitch drop produced by a tone envelope. The sound produced by the pitch alone might be acceptable as a passing seagull, albeit an electronic one. More of this later.

Cymbal is similar to the Ricochet in that it combines noise with a pitch. Synthesisers usually produce a cymbal sound with a little chuff of white noise, sometimes with a ping added as here. The result is usually a very electronic-sounding cymbal. If you reduce the duration of the effect, you will get metallic-like clicks. Redefine ENV 2 in line 310:

310 ENV 2,1,15,1,5,-1,2,10,-1,2

The Sleeping Editor was an attempt to produce an organic sound, ie one emanating from a living creature. Perhaps, with a little stretch of the imagination, it might be accepted as a snoring giant.

The Flying Saucer combines sound and noise again, cranking itself up to escape velocity and then vanishing with a shimmer. A little experimentation was necessary to produce the values for whine and engines and to arrive at the duration formula in line 510.

Soundscapes: a total sound effects program

With such a versatile computer and sound chip there are lots of sound effect collages you could build up: trains, ships, cars, a factory, the countryside, a laboratory, the jungle, etc. The most interesting are ones which will not repeat for a long time or which do not repeat exactly. The next program (Prog 2) uses some of the ideas discussed in this and previous chapters to form a sea soundscape.

As it stands, you just run the program, sit back and listen.

Commentary

Most of the program is devoted to generating random numbers in a range which will produce interesting results.

Lines 130 to 150 set up envelopes for the seagulls and foghorn.

Line 170 uses an interrupt to sound a foghorn every 15 seconds. Quite simply it means EVERY 750 fiftieths of a second GOSUB to line 410. The foghorn routine uses channels B and C. Line 410 flushes the channel and sends a sound to channel B to rendezvous with channel C. Line 420 flushes the channel and sends a sound to channel C to rendezvous with channel B. The flushes are necessary because, while not making foghorn noises, both channels are making seagull noises. Vary the pitches of the notes to produce different foghorn sounds.

Line 180 sets the sound interrupt, SQ(1) to call the wave routine at line 270. SQ was discussed in an earlier article. Notice how the interrupt must be re-primed at line 370. This routine repeatedly redefines volume envelopes 3 and 4 and produces different values, wave, to be sent to the noise parameter of the SOUND command. Each wave uses two pitches of noise and the effects produced by the volume envelopes will vary from the quiet to the stormy.

The main loop of the program, between lines 200 and 240 has nothing to do but trigger the seagulls. These are produced by a variation on our Ricochet envelope in Program 1. Some of the gulls are a little electronic and you may like to restrict the pitch ranges. Also, change the channel allocations to alter the stereo image.

Further experiments in soundscapes

Although we do not have the facilities of a full-blown synthesiser, we can still produce background effects which can be played throughout a program. An extension to a soundscape could be a graphics design program controlled, possibly, by the random values produced by the soundscape. That should not be too difficult: the Amstrad can produce an enormous range of sound and graphic effects.

Next time, we'll construct a Synthesiser using only your Amstrad, some nifty programming, a cereal box, sticky backed plastic, and a pair of Val's knickers! Meanwhile, enjoy making sounds on your Arnold.

*****PROG 1*****

100 REM Sound Effects 110 REM Prog 1 120 REM 130 REM ***MACHINE GUN*** 140 FOR burst=1 to 3 150 FOR bullet=1 to 12 160 SOUND 1,0,5,7,0,0,13 170 SOUND 1,0,5,7,0,0,18 180 NEXT bullet 190 FOR d=1 to 1500:NEXT 200 NEXT burst 210 : 220 REM ***RICOCHET*** 230 ENV 1,1,15,5,5,-1,10,10,-1,5 240 ENV -1,1,-120,1,40,1,3 250 FOR shot=1 to 3 260 SOUND 1,150,100,0,1,1,15 270 NEXT shot 280 FOR d=1 to 3500:NEXT 290 : 300 REM ***CYMBAL OR ANVIL*** 310 ENV 2,1,15,5,5,-1,10,10,-1,5 320 FOR clang=1 to 8 330 SOUND 1,16,0,0,2,0,15 340 NEXT clang 350 FOR d=1 to 6000:NEXT 360 : 370 REM ***SLEEPING EDITOR! (SORRY CHRIS)*** 380 ENV 3,7,2,10,5,-1,12,9,-1,6 390 ENV 4,6,2,1,12,-1,20,1,0,100 400 FOR snore=1 to 5 410 SOUND 1,0,200,0,3,0,28 420 SOUND 1,0,0,0,4,0,31 430 NEXT snore 440 : 450 REM ***FLYING SAUCER TAKING OFF*** 460 ENV 5,1,15,2,15,-1,50 470 ENT -2,1,2,2,1,-4,2,1,2,2 480 whine=46 490 FOR engines=31 to 2 STEP -1 500 whine=whine-1.25 510 SOUND 1,whine,(engines/2)^2,15,0,2,engines 520 NEXT engines 530 SOUND 1,whine,0,0,5,2,2 540 REM Thatcher lot for this one!

*******PROG 2*******

100 REM ***PROG 2*** 110 REM ***Sea, Surf and Seagulls (Mind your heads!) 120 : 130 ENV 1,1,15,3,15,-1,8:REM Seagull 140 ENT 1,20,1,2:REM Seagull 150 ENV 2,5,3,1,2,0,175,15,-1,3:REM Foghorn 160 : 170 EVERY 750 GOSUB 410:REM Foghorn 180 ON SQ(1) GOSUB 270:REM Waves 190 : 200 WHILE -1 210 REM ***Seagulls*** 220 IF INT(RND*300+1)=1 THEN SOUND 2,INT(RND*15+1)+15,42,0,1,1 230 IF INT(RND*300+1)=1 THEN SOUND 4,INT(RND*30+1)+30,42,0,1,1 240 WEND 250 : 260 REM ***Waves*** 270 flow=INT(RND*18+1)+2 280 peak=INT(RNS*200+1) 290 ebb=INT(RND*90+1)+10 300 wave=INT(RND*25+1)+6 310 lull1=INT(RND*9+1) 320 lull2=INT(RND*4+1)*50 330 ENV 3,15,1,flow 340 ENV 4,1,0,peak,13,-1,ebb,lull1,0,lull2 350 SOUND 1,0,0,0,3,0,wave 360 SOUND1,0,0,15,4,0,wave-6 370 ON SQ(1) GOSUB 270 380 RETURN 390 : 400 REM ***Foghorn*** 410 SOUND 162,1073,400,0,2 420 SOUND 148,1074,400,0,2 430 RETURN 440 REM Thatcher Lot, Folks!

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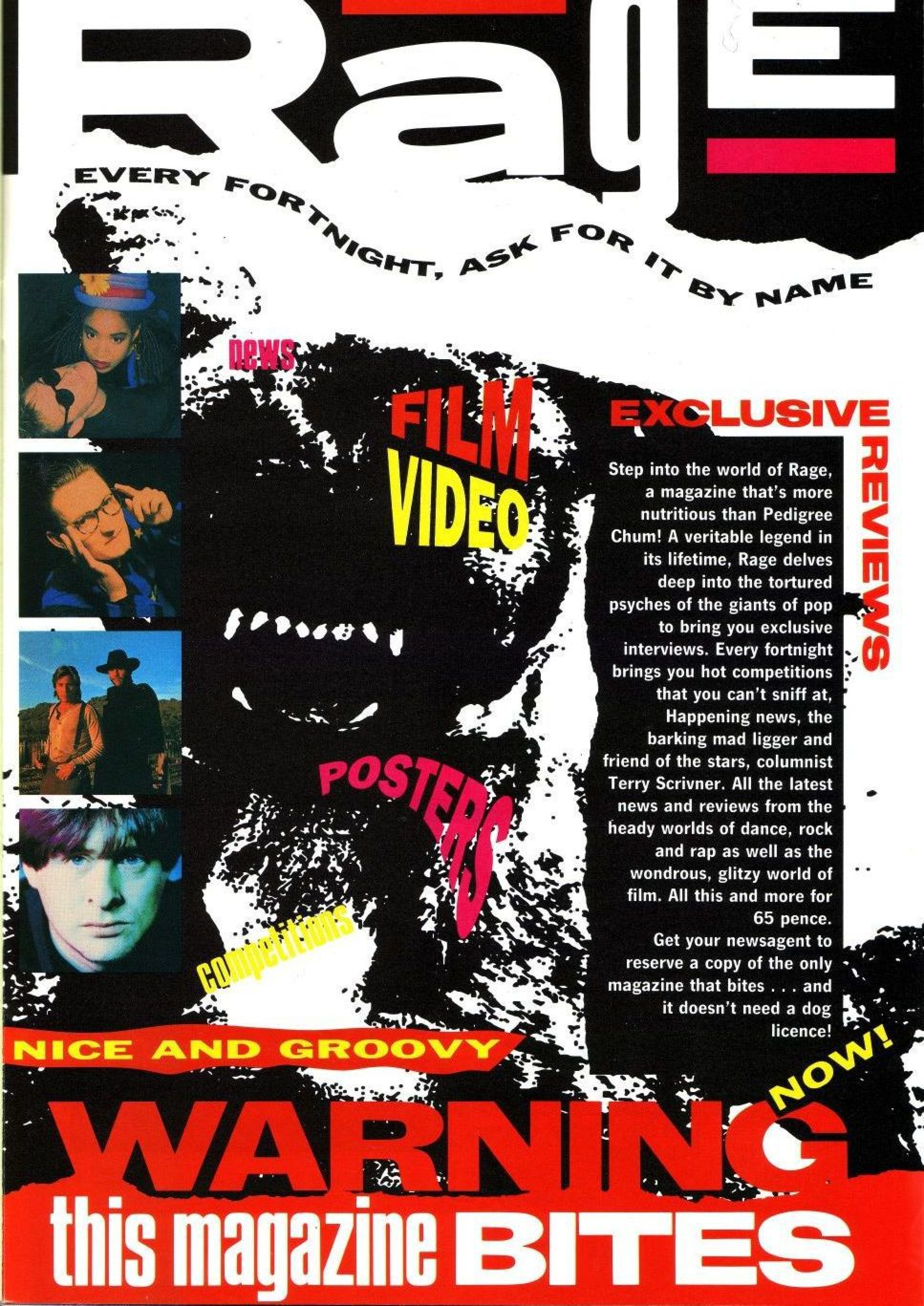
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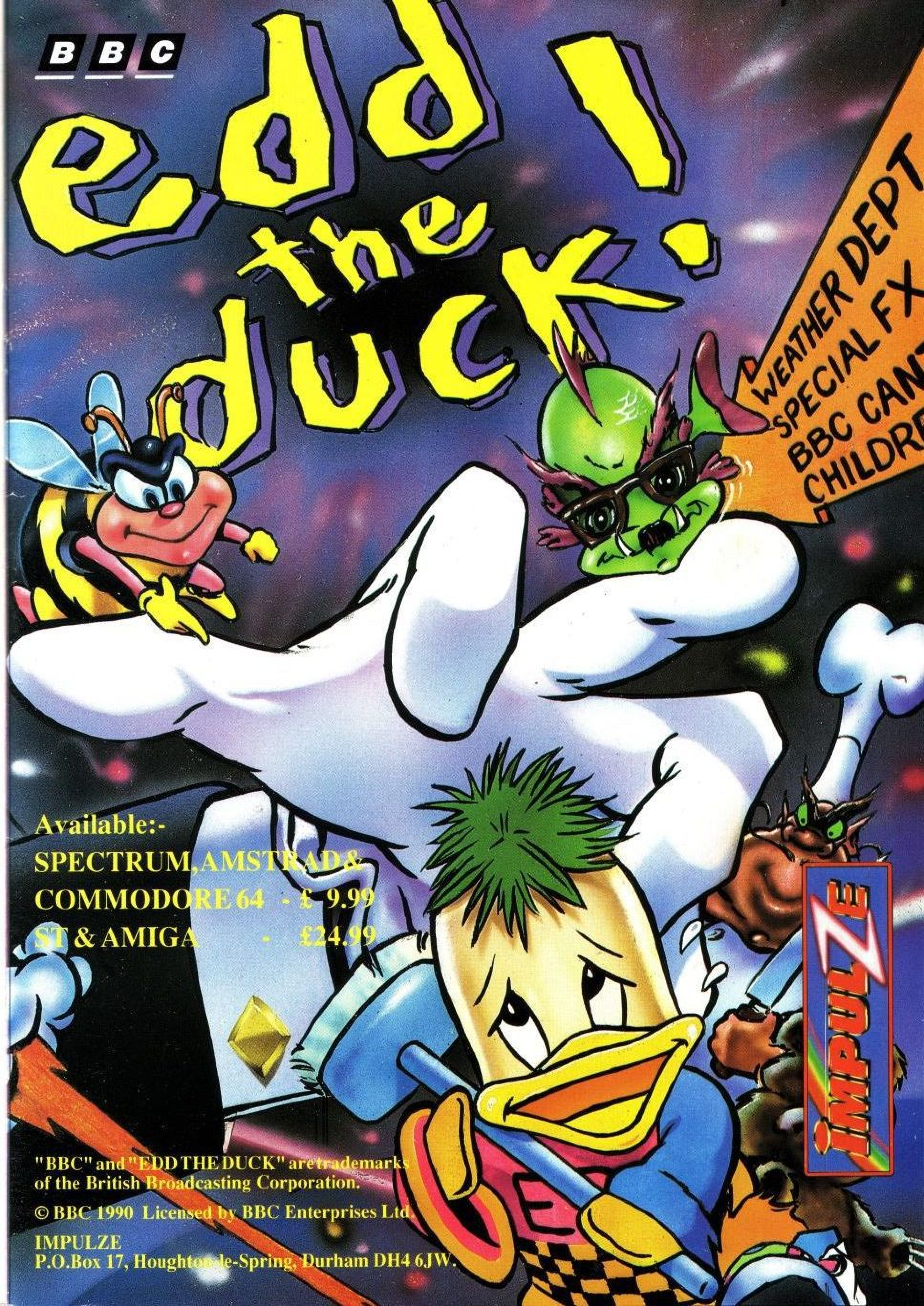
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